Lands

Affected Environment

The *Lands* section includes nonrecreation special uses and land ownership administration and adjustments. Transportation and utility systems are discussed in a separate section. Most nonrecreation special uses are industrial uses, such as commercial fishing camps, transportation facilities, and electronic sites. Appendix E in the 1997 Forest Plan lists the existing and potential electronic sites.

Land Selection Processes

Land ownership within the Tongass is complicated by several ongoing land selection processes. The Alaska Native Allotment Act of 1906 provided for Native individuals who had occupied lands prior to their designation as National Forest to apply for conveyance of up to 160 acres, under conditions prescribed by the Act and Federal Regulations. As of October 1995, 2,014 acres in 37 Native allotments had been conveyed, with an additional 7,914 acres pending adjudication by the Bureau of Land Management (BLM).

The Alaska Statehood Act of 1959 authorized the State of Alaska to select 400,000 acres of vacant and unappropriated land from within the Tongass and Chugach National Forests in Alaska, to further the development and expansion of Alaskan communities. To date, approximately 308,000 acres have been approved for selection. The State had received title to approximately 249,000 acres located in the Tongass National Forest. The State has completed its National Forest selection process and most of the land requested by the State has been approved by the Forest Service. To date, approximately 50,000 acres remain to be conveyed from the Chugach and Tongass National Forests.

The Alaska Native Claims Settlement Act of 1971 (ANCSA) provided for conveyance of 23,040 acres of land to each of the ten Native village corporations and two urban corporations located in Southeast Alaska, additional acres to the Regional corporation (Sealaska), and up to 160 acres to Native individuals who had occupied that land as a primary place of residence on August 31, 1971. To date, approximately 560,000 acres have been conveyed under this legislation.

Land Exchanges

In addition to the above legislation, ongoing discussions and negotiations regarding future land exchanges between the Forest Service and a number of Native Corporations and other entities may influence land ownership on the Tongass. Specific tracts have not been identified for exchange; however, this issue is a factor shaping future land ownership on the Tongass.

Hydroelectric Projects

There are three hydropower projects in the Federal Energy Regulatory Commission (FERC) licensing process on the Tongass that could be affected by wilderness designation. These hydropower projects include the Otter Creek project within the Skagway-Juneau Icefield Roadless Area (301) and the Lake Dorothy project within the Taku-Snettisham Roadless Area (302). The environmental assessments for both of these projects are in the draft stages. In addition to these projects, a preliminary permit from FERC was given to a hydroelectric project on Sunrise Lake in the Woronkofski Roadless Area (231). This project would service the City of Wrangell.

Communication and Other Electronic Sites

A communication or other electronic site is a parcel of land on which buildings, antenna towers, and other electronic equipment designed for communication or monitoring are located. These sites are used for electronic communication systems, including electronic transmitters, receivers, and resource monitoring equipment. These uses are authorized by the Federal Land Policy and Management Act of 1976

and the sites are located throughout the Tongass, including existing wilderness. The sites are operated by the Forest Service, Coast Guard, Federal Aviation Administration, National Weather Service, and a variety of other private and public entities.

Environmental Consequences

The environmental consequences for lands are related to the use restrictions that additional wilderness recommendations would create under each alternative. Changes to the National Forest System land base will continue to occur as a result of the ongoing conveyance processes and from future land exchanges. Additional wilderness and LUD II areas would reduce the pool of land available for future land exchanges with Native Corporations or other entities.

The alternatives would not restrict the conveyance of lands currently selected by the State or by Native Corporations. Consequences of recommending land for wilderness or LUD II designation surrounding or adjacent to selected lands are present, however. The integrity or values of the land recommended for wilderness or LUD II could be compromised due to the conflicting State or Native Corporation land management objectives on conveyed land.

The areas available for future nonrecreation special uses, including communication sites, would be affected by the alternatives recommending wilderness. The alternatives that would most significantly limit areas of new development are Alternatives 5 through 8. Alternatives 5 and 7 would result in 2.0 million or 4.7 million acres of Recommended Wilderness, respectively. Alternative 6 would recommend essentially all roadless lands for wilderness or LUD II designation (8.9 million acres) and Alternative 8 would recommend all inventoried roadless areas (9.7 million acres) for wilderness designation. As a result, Alternatives 6 and 8 would sharply limit new major development activities to areas near existing development. None of these alternatives would isolate development areas from access to other developed areas.

The three hydroelectric projects under study (Otter Creek, Lake Dorothy, and Sunrise Lake) would not likely be authorized if lands associated with them are converted to Recommended Wilderness. This would only occur under Alternative 8 for each of the three projects. Alternative 6 would convert these lands to Recommended LUD II, which would permit the projects as long as they can be designed to retain the overall primitive characteristics of the area. Under Alternative 1, 2, 3, 4, 5, or 7, none of the proposed projects would be affected.

Recreation and Tourism

Affected Environment

Introduction and Overview

The affected environment portion of the recreation and tourism analysis is divided into two broad sections that address the supply of recreation opportunities and existing use levels and trends, respectively. The supply section discusses the existing supply of recreation opportunities in terms of the Forest Service's Recreation Opportunity Spectrum (ROS) classes and inventoried Recreation Places on the Tongass. The existing use and trends section discusses overall forest use, resident recreation, tourism, and commercial outfitter/guide use.

The remainder of this introductory section provides a general overview of recreation in Southeast Alaska and the Tongass National Forest. Southeast Alaska possesses a remarkable and unique combination of features including inland waterways with over 11,000 miles of shoreline, mountains, fiords, glaciers, and large or unusual fish and wildlife populations that provide opportunities for a wide range of outdoor recreation experiences. The Tongass National Forest comprises approximately 80 percent of Southeast Alaska. Southeast Alaska imparts a sense of vastness, wildness, and solitude. These sentiments are enhanced by a small resident population and a relative absence of development compared to most other National Forests.

Recreation and tourism on National Forests encompass more than providing facilities or recreation sites. This is especially true on the Tongass National Forest where most recreation and tourism attractions, and much of the use, occur in remote undeveloped areas. Many Alaska residents purposefully live in proximity to such settings as a part of their lifestyle. Most visitors, who travel long distances to see Alaska, expect to find it wild and "unspoiled," while at the same time seek comfort and convenience, reliable transportation, and other features requiring some level of infrastructure and development. The challenge to managers is to identify and understand the relationship between the settings and the variety of client groups. Commercial providers of recreation activities base much of their marketing strategy on particular environmental settings and identified recreation places within those settings.

The Tongass National Forest includes approximately 17 million acres of land available for recreation. This land contributes greatly to the feeling of vastness and solitude that dominates the region, however much of the land is not suitable for outdoor recreation. Difficult and steep terrain, wetlands, icefields, glaciers, and heavy vegetation confine most recreation activities to accessible shorelines, river and stream bottoms, and around the many lakes within the Forest. Extensive use is made of some of the icefields and alpine areas (above tree line), but access to these areas is usually by aircraft. Both residents and visitors use the developed campground and picnic areas, beaches, trails, cabins, shelters, and visitor centers that are located near communities. A current inventory of developed recreation sites on the Tongass is presented in Table 3.3-16.

The State of Alaska also administers a significant amount of land that is available for recreation. Many of the State land selections were made with recreation opportunities for the residents of local communities in mind. Most of these opportunities are still undeveloped. State selections were also made for future development of a system of marine parks. Currently there are two designated State Parks and one State Historic Site in Southeast Alaska. Numerous other State recreation lands also exist.

Table 3.3-16
Tongass Recreation Facilities

Type of Facility	Number
Anchor Buoys	28
Campgrounds	14
Number of Sites	166
Interpretive Sites	5
Historic Sites	1
Observation Sites	7
Organized Camps	3
Picnic Areas	25
Number of units	142
Recreation Cabins	
- in Wilderness	53
- nonwilderness	93
- on saltwater	53
Total Recreation Cabins	145
Recreation Residences	48
Recreation Road Miles	1,238
Resorts & Lodges	4
Trails (# miles):	
- nonwilderness	419.4
- Wilderness	85.1
Total Trail Miles	504.5
Trail Shelters	25
Trailheads	48
Visitor Centers	3
Winter Sports	1

Source: USDA Forest Service, 1997a (Table 3-34).

Community road systems are limited, but heavily used for access to recreation sites and attractions near local communities. Existing road systems are primarily located near the larger communities of Juneau, Sitka, Ketchikan, Petersburg, and Wrangell. There is an extensive road system connecting the small communities on Prince of Wales Island, and systems developing near the communities of Hoonah and Kake. There is no interconnecting highway system between islands or between communities on the mainland.

Roads exist in other locations where timber harvest has taken place. Independent visitors and local users from other parts of Southeast Alaska use road systems that are accessible from the Alaska Marine Highway System (ferries) or from a community for recreational purposes. Roads in locations where there are no communities or interconnecting access to the Alaska Marine Highway System (ferries) receive relatively low levels of recreation use. However, recreation-related vehicle use has been growing on some remote islands, including Zarembo and Etolin Islands and isolated systems on Kuiu and Kupreanof Islands. While the total amount of recreation use on these islands is low, it can be heavy at times, such as during hunting seasons.

Supply of Recreation Opportunities

The supply of recreation opportunities is described in this analysis using two concepts: the Recreation Opportunity Spectrum and Recreation Places. These concepts describe the quantity of recreation opportunities. Quality is addressed using the "Home Range" concept and by assigning a value to the recreation places. These concepts are discussed in the following sections.

Recreation Opportunity Spectrum

The Tongass National Forest has the potential to provide a wide variety of recreation settings. The ROS has been developed to help identify, quantify, and describe these settings. The ROS system portrays the appropriate combination of activities, settings, and experience expectations along a continuum that ranges from highly modified to primitive environments. Seven classifications are identified along this continuum: Urban (U), Rural (R), Roaded Natural (RN), Roaded Modified (RM), Semi-Primitive Motorized (SPM), Semi-Primitive Non-Motorized (SPNM), and Primitive (P). A general Forest-wide inventory of the ROS classification was made in 1989 and is periodically updated. This inventory was updated to reflect current conditions as part of the roadless area inventory update that was conducted as part of this planning initiative. This updated ROS inventory is used to assess the potential effects of the alternatives on recreation settings.

The seven ROS classes are summarized in Table 3.3-17, based on seven elements that are considered in the allocation and management of recreation settings. Forest-wide ROS acres are presented in Table 3.3-18.

Recreation Places

The Tongass offers a unique recreation setting because it provides an island and marine environment in close proximity to major mountain ranges and icefields. Forested mountains rising from the saltwater provide unique and remote coastal recreation opportunities not found in other areas of the United States. Recreation enthusiasts are able to view a variety of natural landforms and wildlife such as glaciers, old growth forests, humpback whales, spawning salmon, and bald eagles. The immense amount of land in the Tongass National Forest provides a great diversity of recreation attractions and opportunities. Most recreation activities take place in and depend on settings that are primarily undeveloped and widely dispersed. The surrounding saltwater, which is not managed by the Forest Service, allows for motorized boat and floatplane access throughout Southeast Alaska.

The pattern of use associated with known protected boat anchorages, boat landings, aircraft landing sites, and the limited road systems makes it possible to identify specific "recreation places." Recreation places are those areas that are used for recreation activities and are easy to access. Approximately 1,436 recreation places, totaling about 4.3 million acres (25 percent of the total Tongass National Forest), have been identified. Approximately 22 percent or 311 of these places are located in existing designated wildernesses. Although these areas comprise only 22 percent of the Forest-wide place total, they account for 36 percent of total recreation place acres. These areas received relatively low rates of visitation in 1995, however, accounting for only 18 percent of recreation place visitation, measured in Recreation Visitor Days (RVDs). This lower average use per acre likely corresponds with the ROS classification and standards for number of encounters in designated wilderness, as well as limitations placed on commercial group size.

Table 3.3-17
Comparison of ROS Classes

	Urban (U)	Rural (R)	Roaded Modified (RM)	Roaded Natural (RN)
Visual Quality	Alterations to landform and vegetation dominate landscape; nonrecreational activities not to exceed Mod - FG; Max Mod - MG.	Alterations to landform and vegetation dominate landscape; nonrecreational activities not to exceed Mod - FG; Max Mod - MG.	Alterations dominate the landscape; nonrecreational activities/ structures evident, but do not exceed maximum modification.	Alterations to landscape subordinate; nonrecreational activities not to exceed modification though typically partial retention.
Access	Access and travel facilities are highly intense, motorized, and often with mass transit supplements.	All methods of access and travel may occur, but subject to formal regulation.	All methods of access and travel when needed and compatible with intended activities.	All methods of access and travel may occur when compatible with intended activities; zones of non-motorized use.
Remoteness	Remoteness from sites and sounds of human activity not available or important.	Remoteness from sites and sounds of human activity not available or important.	Remoteness from continuous sounds of human activity is expected	Remoteness from continuous sounds of human activity is of moderate important.
Visitor Management	Intensive on-site controls are numerous and obvious.	On-site regimentation and control is obvious.	On-site regimentation and controls are few.	On-site regimentation and control is obvious.
On-site Recreation Development	Recreation structures and facilities readily evident, but appropriate for setting; designed for high use levels. Information and interpretive facilities may be large and complex.	Recreation structures and facilities readily evident, but appropriate for setting, designed for high use levels. Information and interpretive facilities may be large and complex.	Recreation structures and facilities may be present, but are provided primarily for protection of the resource rather than user convenience. Facilities are rustic and harmonize with a backcountry setting.	Recreation structures and facilities provided for site protection and user convenience. Facilities are contemporary but of rustic design and harmonize with natural setting.
Social Encounters	High concentrations of people at one time.	Moderate to high concentrations of people at one time.	Moderate concentration of users on roads and little evidence of others or interactions at campsites	Interactions with others may be moderate to high. Moderate concentrations of people, especially on trails and in dispersed areas.
Visitor Impacts	Very noticeable but managed to prevent physical resource degradation.	Very noticeable but managed to prevent physical resource degradation.	Human use noticeable, but not degrading to resources. Site hardening dominates campsites; parking areas.	Visitor use noticeable but not degrading to resources; established VQOs.

Table 3.3-17 (continued)
Comparison of ROS Classes

	Semi-Primitive Motorized (SPM)	Semi-Primitive Non-Motorized (SPNM)	Primitive (P)
Visual Quality	Alterations few; subordinate to landscape, designed and located to not exceed partial retention.	Alterations few and subordinate to landscape; nonrecreational activities and structures designed not to exceed retention.	Alterations to landscape not evident; structures do not exceed retention.
Access	Travel on trails designed for/open to motor vehicles; roads maintained for high clearance vehicles; motorboats operating on waterways; may establish zones of non-motor use for facility/resource protection.	Trails closed to motorized use; nonmotorized boats used on freshwater lakes and streams.	Trails closed to motorized use; non-motorized boats used on freshwater lakes and streams.
Remoteness	Nearby sights and sounds of human activity are rare; Distant sounds may occur.	Nearby sounds of human activity are rare; distant sounds may occur.	No or very infrequent sounds of human activity.
Visitor Management	On-site regimentation and controls are few.	On-site regimentation and controls are rare.	On-site regimentation and controls are very rare.
On-site Recreation Development	Recreation structures and facilities may be present, provided primarily for protection of site rather than user convenience. Facilities, when present, are rustic and harmonize with natural setting.	Recreation structures and facilities may be present but provided primarily for protection of site. Facilities, when present, are rustic and harmonize with natural setting.	Recreation structures are rarely present, provided primarily for the protection of the site. Facilities, when present, are rustic and harmonize with natural setting.
Social Encounters	Low interaction between users. Campsites seldom within sight or sound of another group except during peak periods.	Low interaction between users. Campsites seldom within sight or sound of another group except during peak periods.	Very low interaction between users and no other groups in sight or sound of overnight camps.
Visitor Impacts	Human use noticeable, but not degrading to resource or backcountry setting.	Human use noticeable, but not degrading to resource elements.	Human use essentially unnoticeable. Site hardening—boardwalks, boat moorings, food caches.

Source: USDA Forest Service, 1997a (Table 3-30).

Table 3.3-18
Forest-wide Recreation Opportunity Spectrum Acres, 2002

ROS Class	Acres
Primitive (P)	10,335,277
Semi-Primitive Non-Motorized (SPNM)	3,108,622
Semi-Primitive Motorized (SPM)	1,372,195
Roaded Natural (RN)	183,257
Roaded Modified (RM)	1,794,677
Rural and Urban (R and U)	7,221

The setting of a recreation place plays a key role in its attractiveness and use. Many recreation opportunities, such as viewing scenery or pursuing solitude, are dependent on this relationship and require a natural type of setting while others, such as hunting or fishing, are less dependent on the type of setting. Table 3.3-19 identifies the distribution of recreation place acres by ROS class. Recreation places can be categorized into three general groupings based on their principal uses and attractions. These three general groupings, marine, freshwater, and land-based, are discussed in the *Recreation and Tourism* section of the 1997 Tongass Forest Plan Revision Final EIS (USDA Forest Service, 1997a; pp. 3-107, 3-108). The distribution of recreation places among these general groupings is presented in Table 3.3-20.

For the purposes of this analysis, recreation places are classified in two basic ways. First, recognizing that access plays a key role in recreation in Southeast Alaska, "home ranges" were defined for each community. Inventoried recreation places were classified into two categories: those located within a radius of approximately 20 miles from communities ("home range") and those outside ("rest of forest"). Almost half (48 percent) of the recreation place acres are within a community home range. Second, recreation places are identified as either important or ordinary/common based on five categories: facilities, marine, hunting, fishing, and tourism. The Forest Service developed this rating system in response to public comments received on the 1990 Draft EIS. Public comment showed concern that the initial recreation place inventory developed for the 1990 Draft EIS did not differentiate really important recreation places from ordinary ones. Recreation places may be important for one, several, or none of the identified categories. Important recreation places by category are summarized in Table 3.3-21 and discussed further in the *Recreation and Tourism* section of the 1997 Tongass Forest Plan Revision Final EIS (USDA Forest Service, 1997a; pp. 3-109, 3-111).

Table 3.3-19
Distribution of Recreation Place Acres by Recreation Opportunity Spectrum Class

ROS Class	Acres (1,000s)
Primitive	1,459
Semi-Primitive Non-Motorized	1,196
Semi-Primitive Motorized	831
Roaded Natural	162
Roaded Modified	661
Rural and Urban	27
Total	**4,336**

Note: This estimate of total recreation place acres is higher than the estimate used in the 1997 Forest Plan Revision Final EIS (USDA Forest Service, 1997a). The database used to develop these estimates has been updated and these estimates were developed using a more precise methodology than the grid-sampling approach that was employed in the 1997 Forest Plan Revision Final EIS analysis.

Table 3.3-20
Distribution of Recreation Places by General Use

	Number of Places	Percent of Total	Acres (1,000s)[1]	Percent of Total
Marine	617	43	1,474	34
Freshwater	302	21	1,084	25
Land-based	531	37	1,778	41
Total	**1,436**	**101**	**4,336**	**100**

[1] Updated acreages were calculated using the ratios from USDA Forest Service, 1997a (pp. 3-107, 3-108).

Table 3.3-21
Important Recreation Places by Category[1]

	Number of Places	Percent of Total[2]	Acres (1,000s)	Percent of Total[2]
Facilities[3]	402	28	1,270	29
Marine[4]	617	43	1,283	30
Hunting[5]	373	26	1,715	40
Fishing[6]	187	13	549	13
Tourism	876	61	2,292	53
Total Acres/Places	**1,436**	**na**	**4,336**	**na**

[1] Recreation places are either rated as important or common/ordinary.
[2] Percent columns sum to more than 100 because a recreation place can be rated important in more than one category.
[3] All recreation places with facilities were rated as being important. In addition, other recreation places with a facility investment, such as a viewing platform, and facilities authorized by a Special Use Permit for recreation purposes, were identified as important.
[4] The marine category identified here is different to the marine type identified in Table 3.3-20. The marine category in this table only includes those recreation places that are truly unique or typify the Southeast Alaska marine experience.
[5] Important hunting areas were distinguished from ordinary hunting areas based on a number of factors, including heavy recurring use, hunter success, ease of access, opportunities for several species, and prized species, such as mountain goats and moose.
[6] Important fishing recreation places were identified using ADF&G ratings for sport fishing.
Note: This estimate of total recreation place acres is higher than the estimate used in the 1997 Forest Plan Revision Final EIS (USDA Forest Service, 1997a). The database used to develop these estimates has been updated and these estimates were developed using a more precise methodology than the grid-sampling approach that was employed in the 1997 Forest Plan Revision Final EIS analysis.
Source: USDA Forest Service, 1997a (pp. 3-109, 3-111).

Existing Use Levels and Trends

The following section is divided into four parts that discuss forest use in general, resident recreation, tourism, and commercial outfitter/guide use on the Tongass National Forest.

Forest Use

Precise information on recreation and tourism on the Tongass is not available. Except for locations where fees are collected or locations where people can be easily counted, most use data has historically been based on long-term observations, anecdotal information, and professional estimates, adjusted by quantitative indicators where available. Forest-wide recreation use statistics were last compiled for the Tongass National Forest in 1996. The basic measurement of recreational activity was the RVD, which is usually obtained through the counting of use permits, visitor surveys, or observation. An RVD is 12 hours of recreation use by one individual. Data compiled for recreation places for 1984 through 1995 showed an upward trend over that period, with recreationists spending an estimated 2,305,000 RVDs on the Tongass in 1995 (see Figure 3.4-8 and Table 3.4-7). These RVDs were classified into three groups based on ROS classes for the purposes of the analysis presented in this document. These groups are Primitive and Semi-Primitive Non-Motorized (here termed ROS 1), Semi-Primitive Motorized (ROS 2), and Roaded Natural, Roaded Modified, Rural, and Urban (ROS 3).

ROS 2 (SPM) accounted for 62 percent of all RVDs occurring on the Tongass in 1994. Areas characterized by SPM settings typically feature large natural appearing landscapes with little evidence of other people or management restrictions (Table 3.3-17). Motorized activities, such as off-highway vehicle (OHV) use, motorboats, float planes, and helicopters are allowed in these areas. ROS 1 (P and SPNM) and ROS 3 (RN, RM, R, and U) accounted for 20 and 18 percent of estimated use in 1994, respectively. P and SPNM (ROS 1) settings are also

characterized by large natural appearing landscapes with little evidence of other people or management restrictions. Motorized use is not permitted in these areas and recreation activities in these settings are characterized by isolation, self-reliance, and challenge (Table 3.3-17). RN, RM, R, and U (ROS 3) settings are characterized by roads, more interactions with people, more sights and sounds of human development and activity, more restrictions and controls, and more landscape modification from other resource management activities.

Future use is projected in Figure 3.4-8 based on actual use from 1984 to 1994. This projection estimates that demand for ROS 2 (SPM) settings exceeded supply in 1998. Supply is projected to continue to exceed demand for ROS 1 (P and SPNM) and ROS 3 (RN, RM, RN, and U) (Figure 3.4-8).

In general, many residents and nonresidents seek the same type of recreation experiences and many engage in similar activities. Alaska has a reputation for vastness, rugged beauty, and solitude and both residents and nonresidents usually expect to find these qualities in recreation settings. Expectations often vary by group and individual, however, with some people having higher expectations of wilderness and solitude than others.

Visitor use data were collected from 649 people surveyed on the north third of the Tongass National Forest in 2000 as part of the Forest Service's National Visitor Use Monitoring (NVUM) program. A draft report summarizing the preliminary findings of this study estimated that there were between 6 million and 10.5 million visits (an estimated 8.2 million visits with an error rate of plus or minus 27.5 percent) to the Tongass National Forest in 2000 (USDA Forest Service, 2001b). The preliminary results of the NVUM study indicate that at least 61 percent of visitors surveyed were Southeast Alaska residents, primarily from Juneau and Sitka. While these preliminary results, based on surveys on one third of the Forest, should be treated with caution, the finding that 39 percent of visitors were nonresidents is not inconsistent with the findings of earlier studies. The economic analysis in the 1997 Forest Plan Revision Final EIS (USDA Forest Service, 1997a; p.3-460), for example, assumed for the purposes of analysis that 44 percent of forest visitors were nonresidents.

The preliminary results of the 2000 survey indicate that the top five activities of survey respondents were hiking or walking (52.3 percent), viewing wildlife (44 percent), general relaxation (31.1 percent), fishing (23.3 percent), and visiting a nature center or nature trail (13.6 percent) (Table 3.3-22). Survey respondents were also asked to identify the primary activity that they were engaged in at the time of the survey. The top activities were viewing wildlife (22 percent), fishing (20.3 percent), hiking or walking (15.5 percent), general relaxation (8.9 percent), and visiting a nature center or nature trail (4.5 percent) (Table 3.3-22). These are the same as the top five activities ranked by participation.

Wilderness Recreation

The Wilderness Act identifies four key wilderness attributes: natural integrity, apparent naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive recreation. While the Wilderness Act and the movement that preceded it reflected a wide range of philosophical values, three general types of wilderness values that are frequently mentioned are the experiential, scientific, and symbolic and spiritual values of wilderness. The experiential value refers to the direct value of the wilderness experience, which is typically viewed as synonymous with wilderness recreation. This type of value is reflected in the writings of early

Table 3.3-22
Activity Participation and Primary Activities Identified in the 2000 Tongass NVUM Survey[1]

Activity[2]	Percent Participation	Primary Activity (Percent)[3]
Hiking or Walking	52.3	15.5
Viewing Wildlife	44.0	22.0
General Relaxation	31.1	8.9
Fishing	23.3	20.3
Visiting Nature Center or Nature Trail	13.6	4.5
Swimming, Games, and Sports	9.5	0.0
Viewing Scenery	8.0	2.0
Picnicking	7.0	2.0
Cross-Country Skiing, Snow Shoeing	6.0	0.0
Nature Study	5.3	1.5
Motorized Water Travel (boats, ski sleds, etc)	5.1	0.3
Visiting Historic and Prehistoric Sites/Area	4.0	0.0
Driving for Pleasure on Roads	4.0	1.0
Gathering Natural Products (mushrooms, berries, etc.)	2.6	0.8
Visiting Resorts, Cabins	2.0	1.0
Non-Motorized Water Travel (canoe, raft, etc.)	2.0	1.0
Downhill Skiing/Snowboarding	1.9	1.4
Bicycling, including Mountain Bikes	1.5	0.9
Backpacking, Camping in Unroaded Areas	1.0	0.1
Off-Highway Vehicle Travel (4-wheelers, dirt bikes, etc)	0.8	0.0
Camping in Developed Sites (family or group)	0.3	0.2
Other Motorized Land/Air Activities (plane, other)	0.3	0.0
Hunting- all types	0.2	0.2
Horseback Riding	0.1	0.0
Primitive Camping	0	0
Snowmobile Travel	0	0

[1] The 2000 Tongass NVUM survey represents a sampling of just three of the ten Ranger Districts on the Tongass. As a result, the data presented in this table may not be representative of other locations on the Forest or the Forest as a whole. Surveys are planned as part of this project for the remaining two-thirds of the Tongass in 2002 and 2003.
[2] The names of the activity categories have been abbreviated for this presentation.
[3] Percent of survey respondents who identified this as the primary activity that they were engaged in at the time of the survey.
Source: USDA Forest Service, 2001b (Table 13).

wilderness proponents including John Muir, Robert Marshall, and Aldo Leopold. Consistent experiential themes include closeness to nature, freedom, solitude, education, and simplicity, as well as the aesthetic, spiritual, and mystical dimensions of the wilderness experience (Hendee et al., 1990). These themes viewed against a backdrop of an increasingly complex society generally underscore a belief that wilderness provides an opportunity for individuals to develop personally, as well as spiritually.

Wilderness recreation includes many diverse activities, some of which do not depend on the wilderness qualities of the environment. Other activities, such as experiencing solitude, isolation, and the challenges of traveling and living in an undeveloped area or observing the results of natural ecological processes on the landscape are dependent on wilderness characteristics. Some activities, such as hunting and fishing, may in certain cases be enhanced by a wilderness setting, but may not necessarily be dependent upon it.

The Wilderness Act's definition of wilderness includes "outstanding opportunities for solitude or a primitive and unconfined type of recreation" and a setting that "generally

appears to have been affected primarily by the forces of nature." Many of the recreation opportunities available on the Tongass are based on these factors, with resident and nonresident recreationists expecting to find these types of opportunities. Approximately 5.8 million acres or 34 percent of the Tongass National Forest is presently designated wilderness (Table 3.24-1). Approximately 10.3 million acres are allocated to the Primitive ROS, with an additional 3.1 million acres assigned to the Semi-Primitive Non-Motorized ROS (Table 3.3-18). These allocations reflect the abundance of primitive, wilderness type recreation opportunities that are presently available on the Tongass National Forest.

Wilderness recreation is generally recognized as one of the most difficult types of recreational use to measure (Hendee et al., 1990; Watson et al., 2000). Wildernesses often have a number of different access points and use is low density and dispersed over wide areas, making it difficult to make any sort of direct head count. Recent data are not available on the number of wilderness visitors to the Tongass. Use is, however, likely lower than that in many of its counterparts in the lower 48 states, especially those located in close proximity to major urban areas and easily accessed by car, such as the Alpine Lakes Wilderness east of Seattle. With the popularity of wilderness recreation increasing, there has been increased day use in some wildernesses in the lower 48 states. This has resulted in high visitor densities that affect the degree of social encounters between groups and have lead researchers to question whether visitors to these types of area are actually having a wilderness experience.

Summarizing the findings of approximately 20 wilderness recreation studies, Hendee et al. (1990) were able to characterize wilderness visitors as generally younger and more educated than the general population. Visitors were predominately male (about 75 percent) and did not typically travel long distances to visit wilderness. Data on existing wilderness use on the Tongass are presently being compiled as part of the NVUM study. Visitor use data were collected from 31 wilderness visitors sampled on the Tongass in 2000 (USDA Forest Service, 2001b). These surveys were conducted at identified exit locations from the north part of the Forest, primarily boat harbors in Sitka and Juneau. While the results of these interviews should be treated as preliminary due to the limited number of individuals involved and the limited geographic scope of the sampling, the findings were generally similar to Hendee et al.'s typical profile of wilderness visitors. The NVUM study found, for example, that wilderness visitors were more likely to be Southeast Alaska residents than visitors to the Forest as a whole (71 percent compared to 61 percent), with two-thirds of the surveyed wilderness visitors residing in or near Juneau. The preliminary results of the NVUM study also suggest that wilderness visitors tend to be younger than visitors to the Tongass National Forest as a whole. Approximately 74 percent of wilderness survey respondents were below 40 years of age, compared to just 46 percent of the total surveyed group. None of the interviewed wilderness visitors used the services of a commercial guide. Forest Service records indicated that commercial guides reported 4,440 client service days in wilderness during the sample year (USDA Forest Service, 2001b). Commercial outfitter/guide use is discussed further in a following section.

Resident Recreation

Many residents of Southeast Alaska place a high value on the quality and availability of outdoor recreation opportunities in the region. This is evidenced by the fact that the proportion of Alaskan residents who participate in outdoor activities is generally much higher than elsewhere in the United States (Bowker, 2001). Many local residents engage in dispersed recreation activities on National Forest System lands and adjacent saltwater. Accurate data on this type of use are difficult to obtain and estimates tend to either underestimate the nature and extent of much of this use or

overcompensate in inconsistent ways (USDA Forest Service, 1997a; p. 3-120). The net result is that while there is a general consensus that outdoor recreation opportunities and activities are highly important to residents, there is little recent documented evidence to clearly support this view.

Resident recreation demand is influenced by a number of factors including regional population levels, per capita participation rates, and recreation travel behavior. Over time, the supply of certain recreation opportunities in Southeast Alaska has increased. Road systems have expanded into previously inaccessible areas, the number of Forest Service recreation cabins and other facilities have increased, and visitor services and tourism marketing have increased. In some cases, supply-induced increases in participation have occurred. This appears to be the case on Prince of Wales, Wrangell, and Mitkof Islands where road systems developed for timber harvesting created an opportunity for road-related access to previously inaccessible recreation settings and an opportunity for recreation activities involving wheeled vehicles.

Supply-induced participation changes have also been accompanied by additional demand for specific recreation places or facilities for a related activity. With increased opportunities for roaded access and activities came the need for parking, dispersed campsites, picnic sites, trails to scenic attractions, and additional short access routes to cabin sites and previously inaccessible beaches. Increased tourism has resulted in increased demand for interpretive services, and walking and hiking opportunities near the major communities.

The use of OHVs, often referred to as off-road vehicles (ORVs), is also a growing activity on the Tongass. Use is limited by topography, dense vegetation, and wet soils. These types of vehicles are most frequently used on road systems connected to communities, with riders seeking out primitive roads or spurs. Limitations of accessibility often result in OHV use on muskegs, beaches, tidal areas, and river channels during low flows. OHV use presently occurs in a limited number of Inventoried Roadless Areas on the Tongass, including two areas near Yakutat.

Tourism

Nonresident pleasure visitors or tourists can be divided into package and independent visitors. Independent visitors, who constitute a small, but growing, group, are characterized as those who get off the ferries and planes and engage in a variety of activities. They spend more time in the communities and on the Forest, and may secure the services of outfitters and guides, restaurants, motels, and transportation services, such as floatplanes, boats, and gas stations. Independent travelers mostly plan their own itineraries, but often secure the services of mini-packages such as day excursions or fishing charters. These types of visitors compete more directly with residents for recreation opportunities on the Forest. Lodges have grown in popularity in recent years (with fishing lodges in particular) playing an important role in the tourism industry in some local areas.

Package visitors are typically the cruise ship clients, though some arrive by ferry and airplane. This is a very large group that uses the Tongass National Forest primarily as a scenic resource. These visitors spend less time in the area and generally follow preplanned and regimented itineraries. Much of their land-based activities are centered around communities. Half-day and day excursions into the Forest are increasing in popularity, but are mostly oriented around boat trips and flightseeing, using the Forest as a backdrop.

The marketing of recreation opportunities by commercial suppliers has important similarities to resident recreation concerns. For example, many businesses that

provide boat or aircraft access for wildlife viewing and other activities have a low tolerance for the presence of other groups in the same area. The presence of more than two or three other parties in a bay or area may cause such operators to seek substitute locations. The ability to market Alaska tourism, in part due to the high cost of visiting Alaska, is dependent on meeting customer expectations of seeing and experiencing vast, awe-inspiring, untamed land and its wildlife. Resident recreationists who traditionally use an area may, however, be discouraged by commercial businesses operating in the same area.

Tourism in the region and state is seasonal, with over 80 percent of Alaska's visitors arriving during the summer season from May through September (McDowell Group, 1999). This percentage is even higher for pleasure-related visitors, with most arrivals in July and August. Visitor data were last compiled for the region in 1993-1994 with a total of 532,700 visitors identified for Southeast Alaska (502,800 in the summer; 29,900 in the fall/winter) (McDowell Group, 1999). These data were compiled as part of the third Alaska Visitor Statistics Program (AVSP), a significant visitor industry research project conducted periodically by the State of Alaska. A fourth AVSP took place over 2000-2001, but so far only the state-wide results for fall/winter 2000-2001 are available (Northern Economics, 2001).

Two of the top three attractions in the state in 1993 to 1994 were directly associated with the Tongass: the Inside Passage, ranked first, and Mendenhall Glacier, ranked third. Southeast communities accounted for four of the six most frequently visited communities and places in the state: Juneau ranked second, Ketchikan third, Skagway fourth, and Glacier Bay sixth. The outstanding scenery was identified as the most cited reason for visiting the region (Table 3.3-23). The many islands, waterways, and landforms, with the backdrop of towering mountains and glaciers winding down to the sea, is a familiar sight throughout the area. Opportunities for seeing whales, bald eagles, puffins, bears, and other wildlife add to the experience. Wildlife is the second most cited reason for visiting the area. Scenery and wildlife were the most frequently cited attractions by both independents and visitors as a whole (Table 3.3-23).

Trends in Visitation

Although the results of the 2000-2001 AVSP are not yet available, it is readily apparent that the number of visitors to the region has increased significantly over the past decade. The number of cruise ship passengers visiting Juneau has more than doubled since 1990, increasing from approximately 237,000 in 1990 to 632,000 in 2000 (Table 3.3-24). The number of passengers docking at Juneau is considered representative of the total number of cruise ship passengers because the majority of cruise ships visiting Southeast Alaska stop there. Other ports in Southeast Alaska,

Table 3.3-23
Reasons for Visiting Southeast Alaska

Reason	Independents	All Visitors
Scenery	66%	66%
Wildlife	31%	35%
Recommendations	25%	25%
Visit Friends/relatives	23%	7%
Fishing/hunting	19%	8%
Wildernesses	16%	13%
Specific Attractions	13%	10%
Part of cruise	9%	60%
Advertising	7%	10%
Price	2%	8%

Source: USDA Forest Service, 1997a (Table 3-37). (Original Source: Data Decisions Group, 1989. *Southeast Alaska Pleasure Visitor Research Program (SEAPVRP)*, Summer 1988, p. 20.)

Table 3.3-24
Southeast Alaska Visitation, 1990 to 2000

Year	Juneau Cruise Ship Passengers[1, 2]	Southeast Alaska State Ferry Passengers[2]	Juneau Airline Departures[2]	Haines Arrivals by Land	Skagway Arrivals by Land
1990	237,070	363,122	183,677	52,719	28,900
1991	248,428	368,780	190,244	51,605	29,300
1992	269,000	372,680	236,824	45,355	42,600
1993[3]	306,600	342,613	200,066	56,406	33,100
1994	372,923	347,998	229,820	55,356	33,400
1995	380,529	332,312	242,084	55,148	38,400
1996	462,542	318,864	234,851	52,326	38,300
1997	513,181	300,653	233,007	51,495	39,700
1998	568,348	303,076	238,842	50,234	42,100
1999	595,595	323,540	244,645	48,997	39,100
2000[4]	632,000	301,176	255,362	43,621	na

[1] These figures for passengers at Juneau are representative of cruise ship visitation trends because the majority of cruise ships visiting Southeast Alaska stop at Juneau.
[2] These data are presented for 1980 through 1994 in the 1997 Forest Plan Revision Final EIS (USDA Forest Service, 1997a; Table 3-38).
[3] The ferry *Taku* was out of service during May and June, which reduced total passengers.
[4] The ferry *Columbia* out of service for most of the summer season, which reduced total passengers.
Notes: The town of Hyder also receives a considerable number of arrivals by land. Based on estimates provided by the Hyder Community Association, approximately 28,000 visitors were recorded at the Fish Creek viewing platform in 1999. This number grew to 31,000 in 2001.
na – not available
Sources: USDA Forest Service, 1997a (Table 3-38) (Original Sources: Alaska Marine Highway Traffic Reports, Juneau Convention and Visitors Bureau, and Juneau Airport Manager's Office); USDA Forest Service, 2001e.

including Ketchikan, Skagway, Seward, and Haines, also experienced net increases in passenger volumes over this period. Sitka and Wrangell were exceptions to this general trend with absolute decreases in passenger volumes during the latter half of the 1990s (Alaska Department of Community and Economic Development, 2002). The rapid growth and sheer magnitude of the cruise ship industry has important implications for recreation planning on the Tongass. Shore excursions have become an integral part of the cruise ship experience, providing increased revenues for ship operators and opportunities for local entrepreneurs. Much of this activity has been concentrated at major ports of call, such as Ketchikan, Juneau, or Skagway. Alongside the international cruise lines, several mid-size cruise operators are now active in the region, often taking their customers to places bypassed by the larger ships.

While the number of cruise ship passengers visiting Juneau has more than doubled, the total number of Southeast Alaska State ferry passengers fluctuated over this period. The total number of passengers was 17 percent lower in 2000 than in 1990, declining from approximately 363,100 passengers to 301,176. State ferry use is largely constrained by available capacity during the summer and the relatively low figure in 2000 is partially explained by one of the State's ferries being damaged at the beginning of the season and out of service for the rest of the year. Passenger levels were also lower in 1999 than they were in 1990. Juneau airline departures increased between 1990 and 2000, but at a much slower rate than cruise ship passengers. Skagway and Haines arrivals by land stayed essentially constant throughout the decade (see Table 3.3-24 and Figure 3.3-3). Essentially all cruise ship use is by nonresident tourists. Ferry and airline passenger volumes and arrivals

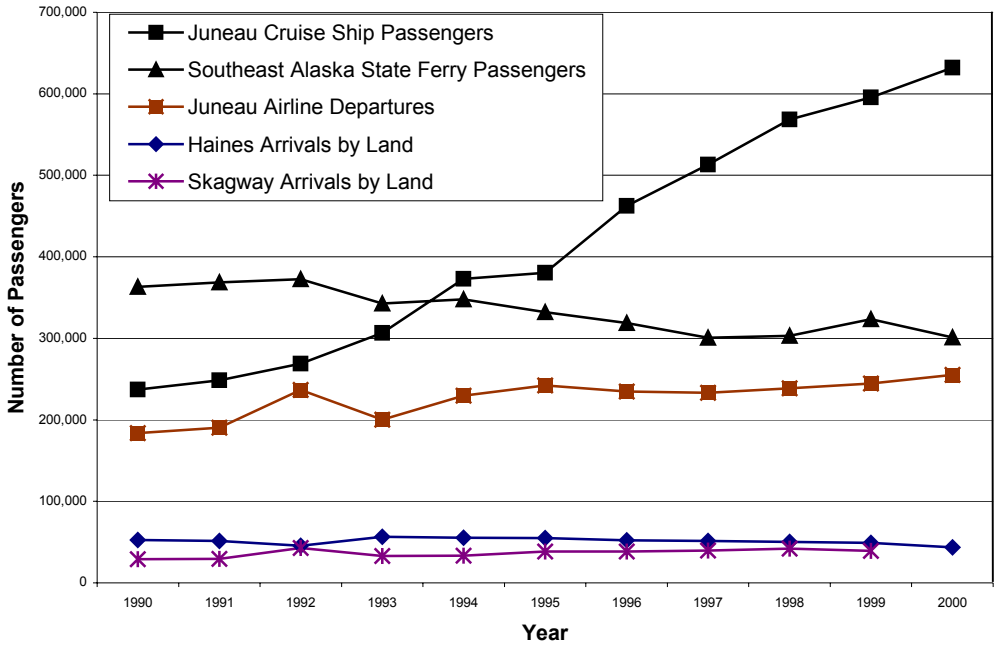
by land, on the other hand, also include Alaska residents and nonresidents visiting for reasons other than recreation and tourism, such as business or visiting relatives or friends.

Table 3.3-25
Juneau Icefield and Mendenhall Glacier Visitation, 1990 to 2000

Year	Juneau Icefield Tour Passengers[1]	Mendenhall Glacier Visitors[1]
1990	34,765	188,000
1991	41,887	145,482
1992	45,638	160,000
1993	53,600	210,000
1994	62,449	265,000
1995	55,818	212,411
1996	65,709	276,000
1997	75,491	237,233
1998	84,632	238,366
1999	85,174	273,488
2000	85,531	na

[1] These data are presented for 1980 through 1994 in the 1997 Forest Plan Revision Final EIS (USDA Forest Service, 1997a; Table 3-38).
Sources: 1990 to 1994: USDA Forest Service, 1997a (Table 3-38) (Original Source: Juneau Ranger District Records); 1994 on: USDA Forest Service, 2001e.

Figure 3.3-3
Southeast Alaska Visitation, 1990 to 2000



Note: Data were not available for Skagway arrivals for 2000. Longitudinal data are not available for arrivals in Hyder (See Table 3.4-16, note 5).
Source: See Table 3.3.24.

Visitation trends for two popular excursions, Juneau Icefield and Mendenhall Glacier, are presented in Table 3.3-25. The number of visitors to these areas has increased significantly over the past decade. The number of Juneau Icefield helicopter landing tour passengers increased by 146 percent from 1990 to 2000, with a total of 85,531 passengers in 2000. Visitors to the Mendenhall Glacier, as reported by the Forest Service, increased by 45 percent between 1990 and 1999, with a total of 273,488 visitors in 1999. Ferry and airline passenger volumes and arrivals by land may, therefore, be affected by resident population trends, as well as visitor trends.

Commercial Outfitter/Guide Use

The Forest Service authorizes commercial activities to make it easier for the public to visit national forests. Due to its remote and rugged nature, recreation use on much of the Tongass National Forest requires good outdoor skills and/or specialized equipment. Commercial outfitters and guides provide access and equipment to assist people who might not otherwise be able to pursue certain recreation activities on the forest. Outfitter/guides on the Tongass range from small family run operations to larger corporations and non-profit organizations. Both residents and nonresidents use the services of outfitter/guides, but nonresidents tend to use outfitter/guides more often because they don't have the local knowledge or necessary equipment. Local residents tend to use their own boats and equipment to reach the forest. Personal boats are often smaller than charter boats used by nonresidents, resulting in visiting groups of residents generally being smaller than nonresident groups.

Outfitter/guides require special use permits to operate on the Tongass and are required to report annual use as part of their permit. Outfitter/guide use information compiled for the shoreline areas on the north part of the Tongass from 1994 to 1999 shows a dramatic increase in outfitter/guide use in shoreline areas, with the number of outfitter/guide clients increasing from approximately 1,550 in 1994 to 14,096 in 1999 (USDA Forest Service, 2001c). Outfitter/guide activities included in these data are those that usually occur within one-half mile of a saltwater shoreline. Helicopter landing tours are not included in these totals. Data compiled by the five Ranger Districts that comprise the south portion of the Forest (Craig, Ketchikan, Petersburg, Thorne Bay, and Wrangell) indicated that outfitter/guides served 19,179 clients in inventoried roadless areas on the south portion of the forest in 2000. These data do not include visitation to the Misty Fiords National Monument Wilderness.

A survey of commercial recreation businesses conducted throughout Southeast Alaska in 2000 found that 73 percent of the businesses surveyed had experienced an increase in the number of clients they serve since 1995 (Alaska Division of Community and Business Development [DCBD], 2001). Nineteen percent reported no change over this period, with the remaining 8 percent reporting a decrease in number of clients served. Sixty-eight percent of responding firms indicated that they had been in business less than 10 years. Cruise ship passengers accounted for 41 percent of total clients for all of the surveyed businesses, ranging from 22 percent of clients for businesses with fewer than 200 clients a year to 91 percent of clients for businesses with more than 10,000 clients a year.

Recreation activities in Southeast Alaska and on the Tongass National Forest cover a broad spectrum of uses, ranging from fishing and hunting to helicopter flights and photography. The principle activities engaged in by the businesses surveyed in 2000 are identified in Table 3.3-26. Saltwater fishing was the most popular activity, followed by nature viewing/sightseeing then wildlife viewing.

Table 3.3-26
Principle Activities Engaged in by Southeast Alaska Commercial Recreation Businesses in 2000

Activity	Percent	Activity	Percent
Saltwater Fishing	63	Hiking, Mountain Climbing	14
Nature Viewing/Sightseeing	49	Cultural/Historical Sites	10
Wildlife Viewing	44	Camping	6
Photography	35	Backpacking	3
Motorized Boating	25	Northern Lights Viewing	3
Freshwater Fishing	21	Downhill Skiing, Snowboarding	1
Bird Viewing	21	X-Country Skiing, Snowshoeing	1
Non-Motorized Boating	15	Bicycling, Mountain Biking	1
Hunting	14		

Source: Alaska DCBD, 2001.

While people often participate in several different activities in one or more settings on any given trip, different activities lead to different numbers of people in a group and different amounts of time spent on the Forest. At one end of the spectrum, guided bear hunting consists of many small groups of one or two people. Hunters are dispersed across a large area and are on the Forest for long periods of time, typically 5 to 10 days, during spring and fall. At the other end of the use spectrum are mid-sized nature-viewing tour boats, with relatively large group sizes (from 12 to 70 people). These groups are typically concentrated in a few areas of the Forest. Their use is short-term and concentrated in the summer season.

The Shoreline Outfitter/Guide EIS that is currently being prepared for the north portion of the Tongass (USDA Forest Service, 2001c), notes that recreation group size is highly variable along shorelines in that study's project area. Groups are generally less than 12 people, although larger groups, often associated with commercially guided groups from tour boats, may also be present. The largest shoreline group reported in the north part of the forest in 1999 was a tour boat with 70 people.

Roadless areas used by outfitter/guides serving groups of more than 12 persons on the north part of the Tongass in 2000 included Granite Cove, Idaho Inlet, Pinta Cove, and Trail River, all in the Chichagof Roadless Area. Activities reported in these areas were hiking and nature viewing, with the average length of visit generally ranging from 1 to 3 hours and an average group size ranging from 32 (Pinta Cove) to 60 (Granite Cove). Outfitter/guides also reported relatively lare group sizes for hiking parties at Williams Cove in the Taku-Snettisham Roadless Area, with an average length of visit of 1 to 2 hours and an average group size of 58. Hiking use involving large groups was also reported at Kelp Bay in the North Baranof Roadless Area, with an average length of visit of 2 to 3 hours and an average group size of 56.

Roadless areas used by outfitter/guides serving groups of more than 12 persons on the south part of the Forest included Betton Island (Behm Islands Roadless Area), Halleck Harbor (Keku Roadless Area), and Cascade Creek (Spires Roadless Area) in 2000 (USDA Forest Service, 2002e). A total of 12,807 remote setting nature tour days were reported for Betton Island in 2000, with an average length of visit of 1.5 hours. Outfitter/guides, mainly serving cruise ship passengers docking in Ketchikan, transport clients to the west side of Betton Island where there is a short nature trail. These nature tours serve a high volume of clients, with an average group size of 97. With several boats in operation, there is fairly continuous daily use of the area during the summer. Outfitter/guides reported hiking use at Halleck Harbor in the Keku

Roadless Area, with an average length of visit of 2 to 3 hours and an average group size of 63. Two large groups were reported hiking at Cascade Creek in the Spires Roadless Area, with trip lengths of 3 hours and groups of 63 and 67.

This type of use accounts for a large number of visitors, but tends to be concentrated in relatively few areas of the Forest. Businesses providing services to these types of larger groups are heavily influenced by physical conditions that allow for large boat access and their schedules.

Helicopter landing tours are another form of outfitter/guide use that has been increasing in popularity in recent years (Table 3.3-25). Of 632,000 cruise ship passengers visiting Juneau in 2000, 85,531, or 14 percent, participated in helicopter landing tours on the Juneau Icefield (Tables 3.3-24 and 3.3-25). These tours to the Juneau Icefield involve high volumes of people concentrated at specific locations for short periods of time, typically 2 to 4 hours. Helicopter traffic, in groups of one to three helicopters, is almost continuous to and from icefield locations during the summer. Clients are typically outfitted and guided to walk, photograph, hike, or trek on, and explore the glacial environment. Dogsled mushing tours on the Juneau Icefield are also increasing in popularity, with 9,000 cruise ship passengers engaging in this activity in 2000 (USDA Forest Service, 2001f).

Helicopter landing tours also occur in a number of locations elsewhere on the forest, including the Revilla and Spires roadless areas. The numbers of visitors are, however, much lower than those to the Juneau Icefield. In 2000, a total of 1,205 helicopter landing tour service days were reported for the Revilla Roadless Area, east of Ketchikan. A total of 727 helicopter landing service tour days were reported for the Spires Roadless Area, northeast of Petersburg.

The 1997 Forest Plan Revision Final EIS analysis noted that many mid-sized boat-based tourism operators are feeling “squeezed” between designated wilderness and developed areas. These operators typically bring large groups ashore for nature tours. Group size limits in wilderness prevent their use of these areas.

While many Southeast Alaska residents support the growing tourism industry, some residents are questioning the benefits and believe that unregulated growth of this industry would be detrimental with high social costs to communities. A number of comments received during the scoping process for the Shoreline Outfitter/Guide EIS requested that local operators be given preference over seasonal and large outside commercial operators so that small locally owned businesses are not overwhelmed by large, non-local corporations. It may be noted that this type of provision is included in the existing Wilderness LUD management prescription. Under ANILCA (Section 1307), in selecting persons to provide new visitor services, with the exception of hunting and sport fishing, preference is given to the Native Corporation most directly affected by establishment of the subject wilderness and to local residents, as defined by the Secretary of Agriculture (USDA Forest Service, 1997b).

Environmental Consequences

This section describes the potential direct and indirect effects of the proposed alternatives on recreation and tourism. The section is divided into two broad parts that address the supply of recreation opportunities and use and demand, respectively. The supply section discusses the existing supply of recreation opportunities in terms of the Forest Service’s ROS classes and inventoried Recreation Places on the Tongass. The use and demand section discusses the potential effects on resident recreation, tourism, commercial outfitter/guide use, and projected demand by ROS setting.

Effects on Supply

The following section discusses the potential effects of the proposed alternatives upon ROS settings and recreation places.

Recreation Opportunity Spectrum

As discussed in the preceding affected environment section, the ROS system is designed to help identify and quantify different types of recreation setting on the Tongass National Forest and portrays the appropriate combination of activities, settings, and experience expectations along a continuum that ranges from highly modified to primitive environments. The Forest-wide mix of ROS settings would vary by alternative. Estimated acres by ROS setting and alternative are presented in Table 3.3-27. The changes shown in this table are long-term changes that are expected to occur 150 years in the future and would take place gradually over several decades. ROS settings were projected to change in those areas allocated to

Table 3.3-27
Forest-wide Recreation Opportunity Spectrum (ROS) Acres after 150 Years of Alternative Implementation by Alternative

Alternative	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Roaded Modified	Rural and Urban
Current	10,335,277	3,108,622	1,372,195	183,257	1,794,677	7,221
	62%	19%	8%	1%	11%	0%
1	9,421,998	2,431,490	1,247,418	467,324	3,225,797	7,221
	56%	14%	7%	3%	19%	0%
2	9,421,998	2,431,491	1,247,418	467,324	3,225,797	7,221
	56%	14%	7%	3%	19%	0%
3	9,625,666	2,434,844	1,262,309	417,365	3,053,840	7,224
	57%	14%	8%	2%	18%	0%
4	9,448,300	2,433,013	1,251,159	436,210	3,225,342	7,224
	56%	14%	7%	3%	19%	0%
5	9,726,102	2,541,816	1,267,594	408,023	2,850,489	7,224
	58%	15%	8%	2%	17%	0%
6	10,267,496	3,057,734	1,352,320	300,865	1,815,570	7,263
	61%	18%	8%	2%	11%	0%
7	9,976,971	2,647,457	1,286,782	331,972	2,550,840	7,224
	59%	16%	8%	2%	15%	0%
8	10,334,965	3,096,870	1,356,616	185,894	1,819,640	7,263
	62%	18%	8%	1%	11%	0%

Notes:
1. All percentage figures are percent of total Forest acres (16,801,249). The Rural and Urban ROS settings have been combined and represent less than 1 percent under all alternatives.
2. ROS settings were projected to change in those areas allocated to the Semi-Remote Recreation, Scenic Viewshed, Modified Landscape, and Timber Production LUDs. These projected changes are based on the following assumptions:

- Semi-Remote Recreation: 5 percent of P, SPNM, and SPM would be converted to RN over the 150-year evaluation period.
- Scenic Viewshed: 25 percent of P, SPNM, and SPM would be converted to RM, 25 percent of P would change to SPNM, and 50 percent of P and 75 percent of SPNM and SPM would stay the same over the 150-year evaluation period.
- Modified Landscape: 50 percent of P, SPNM, and SPM would be converted to RM, 50 percent of P would change to SPNM, and 50 percent SPNM and SPM would remain the same
- Timber Production: 80 percent of P, SPNM, and SPM would be converted to RM, 10 percent of P, SPNM, and SPM would change to RN, 10 percent of P would become SPNM, and 10 percent of SPNM and SPM would remain the same.

P=Primitive; SPNM=Semi-primitive Non-motorized; SPM=Semi-primitive Motorized; RN=Roaded Natural; RM=Roaded Modified; R=Rural; U=Urban

intensive and moderate development LUDs. As a result, changes in settings are related to projected levels of future development.

Viewed in terms of total Forest-wide acres, Alternatives 6 and 8 would provide the greatest amount of primitive and semi-primitive opportunities, with little change occurring from the existing condition. Alternatives 1, 2, and 4 would result in the greatest shift from the existing condition to roaded opportunities, followed by Alternatives 3, 5, and 7, respectively. The Rural and Urban classes remain essentially the same as the existing situation under all alternatives. The ROS projections provide a general overview of how the recreation settings of the Forest would change over time with each alternative. Roaded Modified areas, which currently comprise 11 percent of the Forest, would increase by nearly 73 percent under Alternatives 1, 2, and 4 to make up about 19 percent of Forest-wide acres. Even under these alternatives, however, 70 percent of the Forest would remain at the undeveloped end of the opportunity spectrum.

Recreation Places

This analysis assesses the potential effects of the proposed alternatives upon recreation places based on projected changes in the LUDs within which these places are located. In general, the Intensive and Moderate Development categories would provide Roaded Modified and Roaded Natural setting opportunities in the future, if they are not currently in these settings. Recreation places in the Natural Setting and Wilderness groups would likely retain their existing settings. It is important to remember that these effects are the result of long-term changes that are expected to occur gradually during the next 150 years.

Home Range Recreation Places

Home range recreation places are those inventoried recreation places within an approximate 20-mile radius from one or more communities. These places are displayed by LUD and alternative in Table 3.3-28. Home range recreation places in development LUDs would range from 12 percent of total home range acres under Alternative 8 to 30 percent under Alternatives 1, 2, and 4. The percent of home range recreation place acres allocated to Wilderness LUDs would range from 21 percent under Alternative 1 to 80 percent under Alternative 8.

Important Recreation Places

Recreation places are identified as either important or ordinary/common based on five categories: facilities, marine, hunting, fishing, and tourism. Individual recreation places may be important for one, several, or none of these categories. The following

Table 3.3-28
Home Range Recreation Places by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	16	14	50	21
2	16	14	43	28
3	15	14	46	26
4	16	14	46	24
5	13	13	36	38
6	7	6	55	32
7	13	11	31	45
8	6	6	7	80

Table 3.3-29
Recreation Places Important for Facilities by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	5	9	49	38
2	5	9	49	37
3	5	9	45	41
4	5	9	46	40
5	4	9	35	52
6	3	4	48	45
7	4	8	31	57
8	3	4	7	87

sections discuss the long-term effects of the proposed alternatives upon important recreation places by category.

Facilities. The long-term effects of the proposed alternatives on important recreation places with facilities are summarized in Table 3.3-29. These effects are presented in terms of the percentage of recreation place acres by LUD group, which indicates the general degree of development that each alternative would have on existing recreation places with important facilities. The potential effects of development would likely vary by the type of facility. The importance of a remote public recreation cabin may, for example, be enhanced greatly by the solitude and natural scenery the area provides. This type of setting may be of only secondary importance for a similar cabin where the attraction might be the outstanding steelhead fishing in the spring.

Approximately 29 percent of inventoried recreation places acres are currently important for recreation facilities. The overall percentage of acres that would be allocated to development LUDs is fairly consistent across alternatives, ranging from 7 percent (Alternatives 6 and 8) to 14 percent (Alternatives 1 through 4). Alternatives 7 and 8 would have the highest proportion of recreation place acres important for facilities allocated to wilderness (Table 3.3-29).

Designating areas wilderness could have an effect on the facilities presently in these areas and would have an effect on future development of facilities. With respect to existing facilities, it is possible that designating certain areas wilderness could create management situations that are inconsistent with wilderness management guidelines. This may, for example, be the case with the wildlife observatory at Anan Creek, which received approximately 2,500 visitors in 2000. If the Anan Roadless Area were designated wilderness, which would be recommended under Alternatives 2, 5, 7, and 8, the area would be managed to be consistent with wilderness guidelines. This would likely involve limiting party sizes and managing the area to meet the appropriate levels of social encounters. It may also be necessary to redesign the current wildlife observatory facilities.

Public recreation cabins are another example of existing facilities that may be affected in areas designated wilderness. Existing recreation cabins may be inconsistent with Wilderness design guidelines and might need to be redesigned or removed. This may, for example, be the case with large cabins that are primarily used by outfitter/guides. There are currently a total of 155 public use cabins on the Tongass, 76 of which are located within roadless areas. The number of cabins located in areas that would be allocated to Recommended Wilderness is identified by alternative in Table 3.3-30. This table provides a count of all public recreation cabins located in areas that would be allocated to Recommended Wilderness. It does not identify those cabins that could need to be redesigned or removed. It should be

Table 3.3-30
Number of Cabins in Recommended Wilderness by Alternative

	Alternative							
	1	2	3	4	5	6	7	8
Number of Cabins in Recommended Wilderness	0	13	12	12	28	14	36	76

Notes: There are a total of 155 public recreation cabins located on the Tongass, of which 76 are located in inventoried roadless areas.

noted that allocating areas to Recommended Wilderness would have no effect on existing facilities. Potential effects would only occur if an area were designated wilderness by Congress and existing facilities would be evaluated on a case-by-case basis at that time.

Designating an area wilderness would also have effects on the potential development of facilities in that area in the future, as well as recreation-related capital improvements that are currently proposed. New public use cabins andshelters would, for example, only be considered when needed for health and safety purposes. Factors considered in a public health and safety need analysis include difficulty of access, particularly with regard to timely pick-up of users, presence of natural hazards, history of fatalities and life-threatening incidents, and natural attractions that entice people to use a particular area. Potential effects on the development of tourism-related facilities are discussed in the tourism portion of this effects discussion.

A review of recreation-related capital improvements proposed for the period 2003 to 2006 (proposals for 2005 and 2006 are currently tentative) suggests that only one of the proposed projects would likely need to be scaled back if the area it is proposed for were recommended for wilderness. This proposed project, which involves developing facilities at Anan at an approximate cost of $270,000, would be affected under Alternatives 2, 5, 7, and 8. The remaining proposed projects would likely go ahead if the areas they are proposed for were recommended for wilderness. Costs would, however, likely increase by about one-third for those projects in wilderness. Estimated costs for the proposed projects, with the exception of the Anan facility construction project, would total approximately $6.3 million under Alternative 1 (Table 3.3-31). Assuming that the costs of the projects that would be located in Recommended Wilderness increased by one-third would result in cost increases equivalent to one percent of the total estimated cost under Alternatives 2, 3, and 4. Projected cost increases under Alternatives 5, 6, and 7 would be approximately 4, 2, and 5 percent, respectively. Projected cost increases under Alternative 8 would be approximately 25 percent.

Marine. The long-term effects of the proposed alternatives on recreation places that are important for marine recreation are summarized in Table 3.3-32. These effects

Table 3.3-31
Potential Increase in Recreation-Related Capital Improvement Costs, 2003-2006, by Alternative

	Alternative						
	2	3	4	5	6	7	8
Estimated CIP Cost Increase	1%	1%	1%	4%	2%	5%	25%

Notes: CIP = Recreation-Related Capital Improvement Project
1. Total estimated costs under Alternative 1 are approximately 6.3 million. Proposals for 2005 and 2006 are currently tentative.
2. Estimated cost increases are approximate.

Table 3.3-32
Recreation Places Important for Marine Recreation by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	12	10	46	32
2	12	10	38	40
3	12	9	42	37
4	12	10	43	36
5	9	8	30	52
6	3	4	48	45
7	8	7	25	61
8	3	5	6	87

are presented in terms of the percentage of recreation place acres by LUD group. The perception of naturalness and scenery are very important values among Forest visitors engaged in the unique marine recreation opportunities offered by the Tongass. Approximately 32 percent of inventoried recreation places acres are currently important for marine recreation activities. Many of these recreation places are within the beach fringe and are allocated to the Semi-Primitive Motorized ROS.

The overall percentage of recreation place acres that are important for marine recreation and would be allocated to development LUDs ranges from 7 percent (Alternative 6) to 22 percent (Alternatives 1, 2, and 4). Alternatives 7 and 8 would have the highest proportion of recreation place acres in this category allocated to wilderness.

Hunting. The long-term effects of the proposed alternatives on recreation places that are important for hunting are summarized in Table 3.3-33. These effects are presented in terms of the percentage of recreation place acres by LUD group. Hunters who favor hunting in an undisturbed, natural setting would likely prefer those alternatives that have the most acres in the Natural Setting and Wilderness groups. Hunters who prefer using roads and road access would generally benefit from those alternatives with more acres in the intense and moderate groups. Approximately 41 percent of inventoried recreation places acres are currently important for hunting.

The overall percentage of recreation place acres that are important for hunting and are allocated to development LUDs would range from 8 percent (Alternatives 6 and 8) to 29 percent (Alternatives 1 through 4). Alternatives 7 and 8 would have the highest proportion of recreation place acres in this category allocated to wilderness.

Table 3.3-33
Recreation Places Important for Hunting by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	19	10	46	25
2	19	10	35	36
3	19	10	43	28
4	19	10	43	27
5	11	8	27	54
6	5	3	48	44
7	10	5	21	64
8	5	3	4	88

Fishing. The long-term effects of the proposed alternatives on recreation places that are important fishing places are summarized in Table 3.3-34. These effects are presented in terms of the percentage of recreation place acres by LUD group. The standards and guidelines for all alternatives maintain fish habitat. The quantity of fish availability would likely remain constant across alternatives and immediate stream side areas would remain natural. However, access to streams and areas immediately adjacent to streams may be subject to modifications at various levels. This may affect the quality of the fishing experience for some. Approximately 14 percent of inventoried recreation places acres are currently important for fishing.

Alternatives with more acres in the Intensive and Moderate Development LUD groups would generally provide increased road access to fishing areas. However, the setting adjacent to the stream side corridors would appear more modified over time. The Natural Setting and Wilderness LUD groups maintain the settings in a more natural condition, with access generally more challenging. Access may affect the quality of the fishing experience regardless of the degree of setting changes leading up to the stream.

The overall percentage of recreation place acres that are important for fishing and would be allocated to development LUDs ranges from 9 percent (Alternatives 6 and 8) to 27 percent (Alternatives 1 through 4). Alternatives 7 and 8 would have the highest proportion of recreation place acres in this category allocated to wilderness.

Effects on Use and Demand

The alternatives being evaluated in this SEIS specifically address new wilderness-type recommendations, ranging from no additional wilderness under Alternative 1 to maximum wilderness under Alternative 8. The following section is divided into four parts that discuss the potential effects of the alternatives in terms of resident recreation use, tourism, commercial outfitter/guide use, and projected recreation demand by ROS setting.

Resident Recreation

Wildernesses on the Tongass National Forest are managed for Primitive and Semi-Primitive ROS settings that emphasize existing opportunities, while recognizing exceptions due to ANILCA authorizations and development activities outside of wilderness. Recreation activities are managed to meet the appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated by the applicable ROS settings. General public use of wilderness is provided in accordance with ANILCA provisions for the use of snowmachines, motorboats, fixed-wing airplanes, and nonmotorized surface transportation methods

Table 3.3-34
Recreation Places Important for Fishing by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	18	9	45	28
2	18	9	38	35
3	18	9	40	33
4	18	9	40	32
5	14	8	29	49
6	4	5	53	39
7	13	7	27	53
8	4	5	8	83

for traditional activities that are legal and for travel to and from villages and homesites. Traditional activities include, but are not limited to, recreation activities such as sport fishing, sport hunting, boating, sightseeing, and hiking.

Forest-wide LUD allocations are presented by alternative in Table 3.3-35. This table also highlights the net change in development LUDs from Alternative 1. Net changes would range from 0 under Alternatives 2 and 4 to 15 percent of the Forest under Alternatives 6 and 8, although not all of this change would be to Recommended Wilderness under Alternative 6. This long-term preservation of Primitive and SPNM ROS settings is reflected in Table 3.3-27, which shows projected changes in ROS settings 150 years into the future. The effects of the LUD allocations on important recreation places are discussed in the preceding section.

In many cases designating new wilderness would be unlikely to affect current resident recreation use patterns in the short-term. This lack of short-term change reflects the relatively unique nature of the Tongass with respect to other National Forests in the United States. The Tongass is unique in terms of its size and also the types of access that are permitted under ANILCA. Approximately 10.3 million acres, or 62 percent, of the Forest are presently classified under the Primitive ROS, with an additional 3.1 million acres (19 percent) assigned to SPNM. Designating areas presently characterized by one of these ROS settings as Wilderness would have little immediate effect on management activities in many of these areas and it would still be possible to access areas by motorboat and nonmotorized surface transportation methods. In these cases, the effects of designating new wilderness would be felt in the long-term as the existing character of certain areas would be permanently preserved affecting the type of recreation use that would be possible in the future. This would be especially the case for those areas that would be otherwise allocated to development LUDs.

In other cases, existing recreation use patterns could be affected because the number of visitors to an area may need to be limited to meet an appropriate level of social encounters. Areas currently receiving heavy use that could be affected by wilderness designation include the Anan, Revilla, Sitka Urban, and Juneau Urban Roadless Areas. As noted in the facilities discussion, designating an area wilderness could also potentially affect existing facilities that are not consistent with wilderness management guidelines. These types of changes could also affect resident recreation patterns. Helicopter landings for public access in areas

Table 3.3-35
Forest-Wide LUD Allocations and Net Change in Development LUDs by Alternative

	Alternative							
Land Use Designation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Recommended Wilderness/Wilderness NM	0	4	6	4	12	19	28	58
Wilderness/Wilderness NM	34	34	34	34	34	34	34	34
Development LUDs	22	22	20	22	18	6	15	6
Non-development LUDS	44	40	39	40	36	40	23	2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Net Change in Development LUDS from Alternative 1	n/a	0	-2	0	-3	-15	-7	-15

Notes:
Wilderness NM = Wilderness National Monument
n/a = not applicable

designated wilderness would be limited to specific helicopter access areas. This could potentially limit access via helicopter for winter sports, such as cross country skiing.

Designating areas wilderness could also restrict the type of recreation activities allowed to develop in those areas in the future. Additional public use cabins and/or shelters would only be considered when needed for health and safety purposes. Trail development would be limited, with trails closed to motorized use. These types of restrictions could affect resident recreation patterns in the future. The trail system presently proposed for the Revilla Roadless Area, east of Ketchikan, could, for example, be affected if that area were designated wilderness, which would be recommended under Alternative 8. Additional trail development and visitor numbers could be restricted if the area were designated wilderness.

It should be noted that allocating areas to Recommended Wilderness would have limited effects on existing resident recreation use. Potential effects would only occur if an area were designated wilderness by Congress.

Tourism

As discussed with respect to outfitter/guide use in the affected environment section, the tourism industry and outfitter/guides in Southeast Alaska offer a wide spectrum of recreation activities, ranging from guided bear hunting through helicopter tours and guided wildlife-viewing boat tours. Some activities require developed facilities, utilities, and easy access, while others require vast and remote areas in a natural setting, with outfitter/guides providing only the basic essentials for their clients.

Important Recreation Places

The effects of the proposed alternatives on recreation places that are important for tourism are summarized in Table 3.3-36. These effects are presented in terms of the percentage of recreation place acres by LUD group. All of the proposed alternatives provide a mix of opportunities, although some emphasize those in natural settings while others provide for those in developed settings. These changes may be viewed as opportunities or detriments to various sectors of the tourism industry and their clients. Based on numerous surveys and marketing campaigns for visitors, it is widely accepted that natural beauty and scenery are some of the principal factors attracting visitors to the region. However, the State and part of the tourism industry have expressed a desire for increased access and opportunities for development, as existing areas are at or near capacity. Approximately 56 percent of inventoried recreation places acres are currently considered important for tourism.

Table 3.3-36
Recreation Places Important for Tourism by LUD and Alternative (% of Acres)

Alternative	Intensive Development	Moderate Development	Natural Setting	Wilderness
1	8	7	44	41
2	8	7	36	49
3	7	7	42	44
4	8	7	43	43
5	6	7	31	57
6	2	3	42	53
7	5	5	24	66
8	2	3	7	88

The overall percentage of recreation place acres that are important for tourism and would be allocated to development LUDs ranges from 5 percent (Alternatives 6 and 8) to 15 percent (Alternatives 1, 2, and 4). Alternatives 7 and 8 would have the highest proportion of recreation place acres in this category allocated to wilderness.

Designating areas that are important for tourism as wilderness could affect existing use of these areas by restricting outfitter/guide and general use to be consistent with wilderness management guidelines. Existing facilities in these areas could potentially require modification and future developments in these areas would be restricted, potentially limiting the tourism industry's ability to meet future demand. The potential effects of wilderness designation on existing facilities are addressed in the preceding *Important Recreation Places* subsection. The following section addresses the potential effects of the alternatives upon future tourism developments.

Developments

The Recreation and Tourism Forest-wide Standards and Guidelines in the 1997 Forest Plan address commercial development of facilities and opportunities by LUD. Developments are classified as either major or minor. Abbreviated definitions of these terms are provided below.

> **Major Development.** Major recreation and tourism developments provided by the private sector involve a long-term commitment of the land base, with a moderate to high level of site modification. They involve large buildings or complexes of buildings and facilities, and often provide several services in a concentrated area. Comfort and convenience are provided for guests, and facilities can generally accommodate more than 12 people. Subsequent site reclamation involves extensive removal of facilities and improvements, revegetation, recontouring, etc., and greater than 5 years to attain a natural appearance.
>
> Examples of this type of development include destination resorts and lodges, food and beverage services, downhill ski areas, marinas and gas stations, and full-service campgrounds.
>
> **Minor Development.** Minor recreation and tourism developments provided by the private sector involve only minor site modifications. They involve small rustic facilities and/or improvements, generally with a single purpose or service, and may involve several sites or an extensive area. Basic essentials are typically provided and can generally accommodate 12 or fewer people per site. Site reclamation involves simple removal of facilities and little or no revegetation; a natural appearance can be attained in a few years.
>
> Examples of this type of development include cabins, huts, small docks, cross-country ski trails with simple facilities, temporary or portable camps, and simple and rustic campgrounds.

Table 3.3-37 summarizes the major and minor recreation development standards and guidelines by LUD. The percent of Tongass acres available for tourism development is presented by alternative in Table 3.3-38.

Both Major and Minor Developments are prohibited in Wilderness and National Monument Wilderness; therefore, neither type of development would be allowed on 92 percent of the Tongass under Alternative 8. Neither type of development would be allowed on less than 50 percent of the Forest under Alternatives 1 through 5 and on 53 to 62 percent under Alternatives 6 and 7. Only 1 percent of the Forest would be classified as compatible with either type of development under Alternatives 6 and 8, compared with 20 percent under Alternatives 1 and 2 (Table 3.3-38).

Table 3.3-37
Major and Minor Recreation Developments by LUD

	Major	Minor
Not Allowed	Wilderness Wilderness National Monument Research Natural Area Wild River	Wilderness Wilderness National Monument Research Natural Area
Discouraged	Nonwilderness National Monument Remote Recreation Municipal Watershed LUD II Experimental Forest	Municipal Watershed Experimental Forest
Case-by-Case	Special Interest Area Old-growth Habitat Scenic River Modified Landscape Timber production Minerals Transportation and Utility Systems	Nonwilderness National Monument Remote Recreation Special Interest Area Old-growth Habitat Wild River Modified Landscape Timber production Minerals Transportation & Utility System LUD II
Compatible	Semi-Remote Recreation Recreational River Scenic Viewshed	Semi-Remote Recreation Recreational River Scenic Viewshed Scenic River

Notes:
Not Allowed: Recreation special-use developments are not allowed by law or regulation or are not consistent with agency policy and regulations.
Discouraged: Recreation special-use developments are generally not consistent with the objectives of the LUD. Development proposals require scrutiny of magnitude and scope for LUD conformance.
Case-by-Case: Recreation special-use developments may be compatible with the LUD objectives depending upon the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.
Compatible: Recreation special-use developments are generally compatible with this LUD, and applicants are encouraged to examine these areas first where there is a public need and no private lands are available or suitable for development.
Source: USDA Forest Service, 1997a (Table 3-51).

Table 3.3-38
Percent of Tongass Acres Available for Tourism Developments

	Alternative							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Major Developments								
Not Allowed	35	39	41	39	47	53	62	92
Discouraged	18	14	18	18	14	39	8	0
Case-by-case	27	27	25	26	22	7	19	7
Compatible	20	20	16	16	18	1	11	1
Minor Developments								
Not Allowed	34	39	41	39	46	53	62	92
Discouraged	0	0	0	0	0	0	0	0
Case-by-case	45	41	43	44	36	45	26	7
Compatible	20	20	16	16	18	1	11	1

Commercial Outfitter/Guide Use

A recent survey of commercial recreation businesses in Southeast Alaska indicated that the majority of surveyed businesses were small, with 86 percent earning gross revenues of less than $100,000. Six firms reported revenues over $1 million, including one firm with revenues exceeding $10 million. A similar distribution is evident in terms of clients served, with the majority of firms serving less than 100 clients, a smaller number of firms serving considerably larger numbers, and one firm serving more than 100,000 clients in 1999 (Alaska DCBD, 2001). Businesses serving larger volumes tend to serve relatively large groups and concentrate their use in a few areas on the Forest.

The draft Shoreline Outfitter/Guide EIS noted that 90 firms received permits to operate in shoreline areas on the north part of the Forest in 1999, serving a total of 14,096 clients. Of these, the five largest firms accounted for over half of the client base, and their activity was largely focused on providing hiking and sightseeing experiences for relatively large groups (freshwater fishing excursions with relatively small groups were important for one firm) (USDA Forest Service, 2001c).

Businesses serving large numbers of clients could be negatively affected, if one or more of the areas they regularly use are designated wilderness. Outfitter/guide permits may be issued for wilderness if there is demonstrated need for the service and they are deemed appropriate for the area proposed. Current wilderness management standards and guidelines on the Tongass, however, direct the District Ranger to generally consider a party size of no more than 12 persons for any one site or activity.

Roadless areas used by outfitter/guides serving groups of more than 12 persons on the north part of the Tongass in 2000 included Granite Cove, Idaho Inlet, Pinta Cove, and Trail River (all in the Chichagof Roadless Area), Williams Cove (Taku-Snettisham Roadless Area), and Kelp Bay (North Baranof Roadless Area). Data compiled for the south portion of the Tongass indicate that permitted outfitter/guides served 19,179 clients in inventoried roadless areas on the south portion of the forest in 2000. Roadless areas used by outfitter/guides serving groups of more than 12 persons included Betton Island (Behm Islands Roadless Area), Halleck Harbor (Keku Roadless Area), and Cascade Creek (Spires Roadless Area) in 2000 (USDA Forest Service, 2002e).

Businesses that rely on serving large group sizes in areas designated wilderness could either be displaced to other areas or forced to change their operations. These types of potential effects could be significant under Alternative 8, which would allocate all inventoried roadless areas to Recommended Wilderness. Under this alternative, if party sizes were limited to no more than 12 persons in all of these areas, there would be few locations on the Forest that could accommodate large outfitter/guide groups seeking undeveloped areas. Displacing large guided tours from one location to another could also negatively affect users at other locations.

At the same time, limiting the size of groups could serve to benefit other, smaller outfitter/guide businesses. The Alaska DCBD survey also asked questions about the sensitivity of businesses to competing forms of land use. High concentrations of other recreationists, particularly group sizes over 50, were identified by respondents as one of two factors having the greatest negative effect on their business (the presence of jet skis was the other).

The percentage of total acres on the Tongass National Forest that would be recommended for wilderness under each alternative is summarized by alternative in Table 3.3-35. These numbers provide some indication of the percentage of the Forest that could be placed off-limits to high volume outfitter/guide businesses by

alternative. The percent of acres of recreation places considered important for tourism that would be recommended for wilderness is presented by alternative in Table 3.3-36. These figures represent the percentage of Forest-wide recreation place areas important for tourism that would likely not be accessible to commercial groups of more than 12 persons. Approximately 66 percent and 88 percent of recreation place acres important for tourism would be recommended for wilderness under Alternatives 7 and 8, respectively. More than half of important tourism recreation place acres would be recommended for wilderness under Alternatives 5 and 6. Approximately 41 percent occur in wilderness under existing conditions.

Designating areas that are presently helicopter tour destinations as wilderness could negatively affect those businesses providing this service. This would likely be the case with Alternative 8, which recommends wilderness designation for the roadless area that contains the Juneau Icefield. As discussed in the affected environment section, the Juneau Icefield received 85,531 visitors in 2000. Helicopter landing tours also occur in a number of locations elsewhere on the forest, including the Revilla and Spires roadless areas. The numbers of visitors are, however, much lower than those to the Juneau Icefield. The Revilla Roadless Area would be allocated to Recommended Wilderness under Alternative 8. The Spires Roadless Area would be allocated to Recommended Wilderness under Alternatives 3, 4, 6, 7, and 8.

It should be noted that allocating areas to Recommended Wilderness would have limited effects on existing outfitter/guide use. Potential effects would only occur if an area were designated wilderness by Congress.

Recreation Demand by ROS Setting

The 1997 Tongass Forest Plan Revision Final EIS identified a general concern among various groups about the capacity of the recreation resource base on the Tongass. The recreation and tourism analysis presented in the *Economic and Social Environment* section of the SEIS, found that viewed in ROS terms the largest component of use on the Tongass is in the Semi-Primitive Motorized category. Estimates for 1994 indicated that this ROS class accounted for approximately 62 percent of all RVDs occurring on the Tongass.

Recreation places were assigned an approximate capacity in RVDs based on their ROS class for the purposes of the 1997 Forest Plan Revision Final EIS analysis. The ratios of RVDs to ROS acres developed for the 1997 Tongass Forest Plan Revision Final EIS analysis are also used in the analysis presented in this document. Forest-wide total recreation place capacity is estimated to be approximately 6.3 million RVDs (Table 3.4-7). The theoretical capacity estimates for recreation places are based on ROS settings. The Forest-wide capacity will, therefore, change over time with changes in ROS settings. Each ROS group has a maximum capacity based on the type of experience expected within the setting. ROS 1 has the lowest capacity per acre because it provides a setting for primitive activities in which users expect to be out of sight or sound of other users. ROS 2 has a larger capacity per acre than ROS 1, but users in this setting expect to see only a few other parties during their trip. ROS 3 has the highest capacity and offers opportunities for users to interact frequently with others.

The recreation and tourism analysis presented in the *Economic and Social Environment* section of this document, found that viewed in ROS terms the largest component of use on the Tongass is in the Semi-Primitive Motorized (ROS 2) category. Estimates for 1994 indicated that this ROS class accounted for approximately 62 percent of all RVDs occurring on the Tongass. The analysis summarized in the *Economic and Social Environment* section projected that the

number of RVDs demanded in the Semi-Primitive Motorized category would exceed existing supply within a decade. This suggests that over time, areas assigned to the SPM setting may become increasingly crowded until certain locations no longer meet the criteria for this setting. SPM use includes marine-related activities. The land base in these areas often receives limited use.

Designating areas wilderness would preclude development activities and ensure that the designated area maintains its primitive character. Viewed in these terms, the proposed alternatives with the largest amount of Recommended Wilderness are less likely to result in the creation of new roaded recreation opportunities over time. Projected ROS settings are shown by alternative for 150 years in the future in Table 3.3-27. ROS settings were projected to change over time in those areas allocated to the Semi-Remote Recreation, Scenic Viewshed, Modified Landscape, and Timber Production LUDs. The assumptions used to project these changes are identified in Table 3.3-27, footnote 2. Development activities are generally assumed to convert Primitive (P and SPNM [ROS 1]) and Semi Primitive Motorized (SPM [ROS 2]) settings to roaded settings (ROS 3), primarily Roaded Modified. This analysis implicitly assumes that the supply of primitive and SPM settings is fixed and finite. As a result, none of the proposed alternatives are assumed to increase the supply of Semi Primitive Motorized settings over the 150-year study period. In fact, the supply of SPM settings is projected to decrease across all alternatives with projected declines ranging from about 16,000 acres, or 1.1 percent, under Alternative 8 to 125,000 acres, or 9.1 percent, under Alternatives 1 and 2 (Table 3.3-27). As a result, demand for SPM opportunities is projected to exceed the supply of these opportunities under all alternatives.

The percentage of acres classified as Roaded Modified would increase over the 150-year period for all of the alternatives, with the exception of Alternatives 6 and 8. Alternatives 1, 2, and 4 show the largest gain, with the percent of Forest-wide acres classified as Roaded Modified increasing from 11 percent to 19 percent (Table 3.3-27). As previously noted, even under these alternatives 70 percent of the forest would remain at the undeveloped end of the opportunity spectrum.

Scenery

Affected Environment

The Tongass National Forest offers a variety of scenery to its visitors, from spectacular mountain ranges and the glaciers of the mainland to low-lying marine landscapes composed of intricate waterways, bays, and island groups. The Forest is viewed from a variety of vantage points, including the communities of Southeast Alaska, the Alaska Marine Highway ferry route, cruise ship routes, existing road systems, popular small boat routes and anchorages, developed recreation sites and facilities, and hiking trails. Tourist related flight-seeing via small aircraft is increasing in popularity and provides aerial views of the forest landscape.

This section addresses the current visual condition in the Tongass and the visual quality management objectives as adopted by the 1997 Tongass Forest Plan.

The Tongass is characterized by everything from vast tracts unmodified by human activity to extensive areas of heavily modified landscapes. An inventory of the existing visual condition (EVC) is used to document the degree of alteration that presently exists within an area. These ratings apply to the broad landscape affected, not just the acres altered. An EVC rating of I through IV categorizes the degree of alteration on the landscape on a continuum from a natural setting to a heavily altered landscape. Examples of these ratings are as follows: EVC I depicts a visually unaltered landscape; EVC III has alterations that might be noticed by the average person, but they do not attract attention; EVC V has changes to the landscape that are obvious to the average visitor and dominate the landscape; and EVC VI describes land with alterations that are in glaring contrast to the landscape.

Table 3.3-39 displays the acres of each EVC for the Tongass. In this and succeeding tables, a breakdown between "seen" and "seldom-seen" areas is presented. Seen areas are those areas that can be viewed in the foreground, middleground, or background from the inventoried travel routes and use areas (sensitivity level 1 or 2). Seldom-seen areas are all the rest of the Forest. The EVC for wilderness is also included in this table. Approximately 88 percent of the Tongass is rated in a Type I EVC, or in a visually unaltered condition. About 10 percent of the land is rated in a Type IV, V, or VI EVC, which is an indication of a noticeable development activity. The remainder of the Forest is rated as EVC II or III. Some of the wilderness is rated in an EVC higher than EVC I. This is mostly due to the landscape effect of developments adjacent to wilderness and to past development activities within wildernesses.

The Forest Service developed a Visual Management System (VMS) to inventory scenic resources and to provide measurable scenic quality management standards. Applying the VMS, forest landscape architects consider the relative scenic quality of each portion of the landscape and its sensitivity based on the visibility and the uses in the surrounding areas. The results of this analysis are used in Forest Plans,

Table 3.3-39
The Existing Visual Condition of the Tongass National Forest

EVC Rating	Type I	Type II	Type III	Type IV	Type V	Type VI
Seen	3,863,034	28,828	189,482	267,297	562,659	24,911
Seldom-seen	5,034,075	12,895	41,431	237,898	556,098	14,505
Wilderness	5,645,856	20,695	15,234	21,412	3,701	-
Subtotals	**14,542,966**	**62,418**	**246,147**	**526,607**	**1,122,458**	**39,416**

Note: Less than 2 percent of the Forest is unclassified.

where management prescriptions and adopted Visual Quality Objectives (VQOs) are established for all National Forest System land.

Under the 1997 Forest Plan, all land has a designated LUD, which guides the types and intensity of development actions. The VQOs define the degree to which the natural landscape can be altered, and provide guidelines for timber harvest, road building, and other activities to assure that they are conducted in a way that allows the visual objectives to be achieved. A LUD may have different VQOs depending on the distance zone (foreground, middleground, background) in which the development activity is to take place. VQOs are described in terms of Preservation, Retention, Partial Retention, Modification, and Maximum Modification. For forest management, the VQOs can be defined as follows:

- Preservation - Activities are designed so as not to be visually evident. This VQO is typically assigned to wildernesses; however, it is not used for Tongass wilderness because of the potential alterations allowed under the Alaska National Interest Lands Conservation Act (ANILCA). In reality, the vast majority of wilderness acreage will be managed through the specific wilderness plans with a preservation VQO.
- Retention - Activities are designed so as not to be visually evident to the casual forest visitor.
- Partial Retention - Activities may be evident, but will remain visually subordinate to the characteristic landscape.
- Modification - Activities may dominate the characteristic landscape, but will borrow from existing form, line, color, and texture. Alterations appear to be natural when viewed as foreground or middleground.
- Maximum Modification - Activities may dominate the characteristic landscape. Alterations appear to be natural when viewed as background.

The current adopted VQOs for all land within the Tongass is displayed in Table 3.3-40. This table separates the acres of each VQO into three categories: seen area, seldom seen area, and wilderness. A “seen area” is land that can be viewed in the foreground, middleground, or background from travel routes and use areas classified as sensitivity level 1 or 2 in the 1997 Forest Plan. The rest of the Tongass is classified as “seldom seen” areas.

Demand for scenic quality can best be represented by the increase in tourist-related travel to the Tongass, as well as a heightened awareness and sensitivity of Alaskan residents to scenic resource values. Southeast Alaska's Inside Passage is advertised and promoted by the Division of Tourism, cruise ship operators, and the Southeast Alaska Tourism Council. Their marketing strategy focuses on the scenery

Table 3.3-40
Adopted Visual Quality Objectives for the Tongass

	Visual Quality Objective				
	Retention	Partial Retention	Modification	Maximum Modification	Other[1]
Seen Areas	1,986,932	1,665,967	464,632	742,300	63,283
Seldom-seen	2,345,232	1,611,617	26,904	1,959,175	141,638
Wilderness	5,741,484	-	-	-	-

[1] Includes land in the Municipal Watershed and Nonwilderness National Monument LUDs. VQOs in these LUDs are to be determined on a project-by-project basis. Generally, the Retention VQO will be met.

Source: USDA Forest Service, 1997b.

of the Tongass National Forest as a major attraction. The visitor to Southeast Alaska would, therefore, arrive with expectations and an image of the environment and scenery awaiting them. If current trends continue, demand for viewing scenic landscapes will increase. Lands adjacent to the Alaska Marine Highway, cruise ship routes, flightseeing routes, high use recreation areas, and other marine and land-based travel routes will be seen by more people, more frequently, and for greater durations.

Environmental Consequences

The Tongass has adopted specific VQOs for each LUD in the Forest. These adopted VQOs will indicate the desired or acceptable level of human-induced alteration to the natural landscape character. The alternatives discussed in this section suggest varying degrees of additional wildernesses to the Tongass. Each alternative (not including Alternative 1) could potentially alter the visual character of the landscape by potentially adding new areas of wilderness or LUD II, and would consequently add more of the adopted VQO of Retention. The adopted VQO is, therefore, the unit used to measure potential change in visual resources for each alternative.

The potential effects to the scenic resource are described in two ways:

1. A Forest-wide display of acres of each VQO adopted as a result of each alternative, discussed by alternative. This includes all acres of the Forest including Wilderness.
2. A display of the effects of each alternative on a selected group of key viewsheds throughout the Tongass.

Direct, Indirect, and Cumulative Forest-wide Effects

The Forest-wide VQOs adopted under each alternative are displayed in Table 3.3-41. Seen areas, seldom-seen areas, and wilderness are included. In this table, Recommended Wilderness is included with the Wilderness acres. Under each alternative, the acres in Retention VQO will be equal to or greater than acres currently in Retention. The differences between the action alternatives are evident when looking at the current adopted VQOs (under Alternative 1) that would be changed to Retention VQO.

Adopted VQOs are best thought of as an indicator of long-term cumulative effects, especially on development LUDs. VQOs are adopted to provide a threshold for the amount of modification to the landscape during land altering activities; therefore, land may have an adopted VQO of Modification, but currently meet the Retention VQO.

Another way to assess relative effects on scenic quality is to compare the acres allocated to the moderate and intensive development LUDs (Experimental Forest, Scenic Viewshed, Modified Landscape, Timber Production), with the LUDs for a natural or mostly natural setting (Special Interest Area; Research Natural Area; Wild, Scenic, or Recreational River; Remote and Semi-Remote Recreation; Old-Growth Forest; and LUD II). These comparisons are shown in Table 3.3-42 and are discussed by alternative on the following pages.

Alternative 1. Under Alternative 1, most of the Forest, or 57 percent, would have an adopted VQO of Retention and would be managed for a natural setting. This alternative would protect the natural character of most key viewsheds by allocating LUDs with an adopted VQO of Retention, at least for activities in the foreground distance zone. About half of the land with Retention VQO would be within wildernesses. A Partial Retention VQO is adopted for approximately 18 percent of the Forest under Alternative 1. Landscapes with this VQO are managed to achieve a mostly natural condition. Much of the land with a Partial Retention VQO is

Table 3.3-41
Visual Quality Objectives by Alternative, Forest-wide

	Visual Quality Objective				
	Retention	Partial Retention	Modification	Maximum Modification	Other[1]
Alternative 1					
Seen Areas	1,986,932	1,665,967	464,632	742,300	63,283
Seldom-seen	2,345,232	1,611,617	26,904	1,959,175	141,638
Wilderness	5,741,484	-	-	-	-
Alternative 2					
Seen Areas	1,513,144	1,665,967	464,632	742,300	63,283
Seldom-seen	2,098,941	1,611,611	26,904	1,959,175	141,638
Wilderness	6,461,568	-	-	-	-
Alternative 3					
Seen Areas	1,912,936	1,455,865	429,592	696,619	63,283
Seldom-seen	2,247,122	1,160,264	26,792	1,797,886	141,638
Wilderness	6,817,334	-	-	-	-
Alternative 4					
Seen Areas	1,949,860	1,481,697	464,632	742,300	63,283
Seldom-seen	2,270,925	1,171,157	26,904	1,959,175	141,638
Wilderness	6,477,739	-	-	-	-
Alternative 5					
Seen Areas	1,349,107	1,460,367	412,663	586,192	63,283
Seldom-seen	1,917,037	1,435,302	21,014	1,625,530	141,638
Wilderness	7,737,905	-	-	-	-
Alternative 6					
Seen Areas	3,123,916	149,085	170,239	212,396	40,062
Seldom-seen	3,432,177	20,166	4,352	537,664	121,635
Wilderness	8,962,356	-	-	-	-
Alternative 7					
Seen Areas	987,274	1,072,740	319,174	501,782	63,283
Seldom-seen	1,156,710	752,124	20,184	1,349,006	141,546
Wilderness	10,391,400	-	-	-	-
Alternative 8					
Seen Areas	154,805	152,037	180,389	217,641	1,387
Seldom-seen	56,011	21,645	4,732	547,730	4,267
Wilderness	15,433,360	-	-	-	-

[1] Includes land in the Municipal Watershed and Nonwilderness National Monument LUDs. VQOs in these LUDs are to be determined on a project-by-project basis. Generally, the Retention VQO will be met.

allocated to the Semi-Remote Recreation LUD and realistically meets the Retention VQO. The remaining 19 percent of the Forest would have an adopted VQO of Modification or Maximum Modification, which would allow noticeable development on the landscape.

Alternative 2. The overall distribution of adopted VQOs would be the same as under Alternative 1. The lands recommended for wilderness designation under this alternative are areas currently allocated to LUD II, which currently have an adopted VQO of Retention.

Alternative 3. Alternative 3 would slightly increase the amount of land in Retention VQO by recommending additional areas for wilderness. Most of the increase in Retention VQO comes from land with a previous VQO of Partial Retention and currently managed for a natural setting (Semi-Remote Recreation LUD). Approximately 1 percent of land with Maximum Modification VQO would be recommended for wilderness. This change from Maximum Modification to Retention would occur on Chichagof, Kupreanof, and Kuiu Islands and on the Cleveland Peninsula.

Table 3.3-42
Area in Each LUD Group (in 1,000s of acres) by Alternative[1]

LUD Group	LUD[1]	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8
Natural Setting	RW	0	721	1,076	736	2,005	3,222	4,653	9,524
	W	2,642	2,642	2,642	2,642	2,642	2,642	2,642	2,642
	RW-NM	0	0	0	0	0	0	0	156
	W-NM	3,114	3,114	3,114	3,114	3,114	3,114	3,114	3,114
	NW-NM	160	160	160	160	160	160	160	4
Mostly Natural Setting	RNA	26	26	26	26	24	0	15	0
	SIA	174	174	162	162	168	7	152	7
	RR	2,133	2,133	2,074	2,074	2,002	4	1,093	3
	MW	45	45	45	45	45	2	45	2
	OG	1,175	1,175	1,095	1,150	952	168	802	188
	SR	2,855	2,855	2,212	2,230	2,498	55	1,510	57
	R-LUDII	0	0	0	0	0	5,641	0	0
	LUDII	721	0	718	721	45	721	44	10
	WSR[2]	120	120	106	106	87	13	66	16
Development	EF	17	17	17	17	17	4	11	4
	SV	481	481	464	481	442	116	319	111
	ML	612	612	558	612	542	211	429	225
	TP	2,525	2,525	2,334	2,525	2,056	721	1,745	738
Total		**16,801**	**16,801**	**16,801**	**16,801**	**16,801**	**16,801**	**16,801**	**16,801**

[1] **Natural Setting**
RM = Recommended Wilderness
W = Wilderness
RW-NM = Recommended Wilderness National Monument
W-NM = Wilderness National Monument
NW-NM = Nonwilderness National Monument

Mostly Natural Setting
RNA = Research Natural Area
SIA = Special Interest Area
RR = Remote Recreation
MW = Enacted Municipal Watershed
OG = Old-Growth Habitat
SR = Semi-Remote Recreation
R-LUDII = Recommended LUD II
LUDII = LUD II
WSR = Wild/Scenic/Recreational River

Development
EF = Experimental Forest
SV = Scenic Viewshed
ML = Modified Landscape
TP = Timber Production

[2] Timber harvesting or road construction would only occur within the WSR LUD for Scenic or Recreational Rivers and under special circumstances.

Alternative 4. This alternative would slightly increase the overall amount of land in the Retention VQO by recommending additional areas for wilderness. Under this alternative, all of the land recommended for wilderness is currently managed for a natural setting with a Partial Retention VQO (Semi-Remote Recreation LUD).

Alternative 5. The increase in Retention VQO under this alternative is similar to Alternative 3; however, under Alternative 5, most of the land that would change to Retention VQO currently has a Modification or Maximum Modification VQO. This change from Maximum Modification to Retention would occur on Chichagof, Kupreanof, North Baranof, Mitkof, and Kuiu Islands, Cleveland Peninsula, and the Chuck River/Port Houghton area.

Alternative 6. Under Alternative 6, approximately 87 percent of the Forest would have an adopted VQO of Retention and would be managed in a natural setting. This alternative would generally leave about 5 percent of the land (spread throughout the Forest) with VQOs of Modification and Maximum Modification, which allow noticeable development on the landscape.

Alternative 7. Under this alternative, approximately 70 percent of the Forest would be managed for a natural setting with an adopted VQO of Retention. Some of the areas that would have a new VQO of Retention currently have an adopted VQO of Partial Retention, and are already managed for a natural setting (Semi-Remote Recreation LUD). The other half of the increase in the Retention VQO would come from land currently with adopted VQOs of Modification and Maximum Modification.

This change from Maximum Modification to retention would occur in areas throughout the Forest.

Alternative 8. Alternative 8 is similar to Alternative 6; however, approximately 88 percent of the Forest would have an adopted VQO of Retention. The amount of land with a Modification or Maximum Modification VQO would still be approximately 5 percent.

Effects on Selected Viewsheds

To help focus the visual effects on more familiar areas, the alternatives are also analyzed by selected viewsheds in the Tongass. These viewsheds were selected for their popularity and intensity of public use and travel. Table 3.3-43 compares the acres of adopted VQOs for each alternative in the "seen areas," or viewshed of each of these selected routes. Wildernesses are included in the viewsheds. A qualitative discussion of the effects on scenic resources for each viewshed follows the table.

Two points to consider when reviewing the alternative effects are:

1. Where an area is allocated to the Semi-Remote Recreation LUD, the resulting VQO is essentially Retention because this LUD precludes commercial timber harvest. The formally adopted VQO of Partial Retention is primarily intended to provide a standard for recreation and tourism types of development and facilities associated with these developments, from small cabins to resorts. In most cases the effects would be confined to small sites that would be inconspicuous over a landscape.
2. The Tongass adopts the Retention VQO for wildernesses because of the restrictions in ANILCA; however, the preservation VQO is likely to be achieved in most areas within wilderness.

Behm Canal (West)

Alternative 1 (No Action) would manage this viewshed in a Partial Retention, Retention, and Modification VQO along much of this waterway. On the Revilla Island side (east side) of Behm Canal, the Partial Retention VQO (in the scenic foreground) and the Modification VQO (in the scenic middleground) dominate the seen areas. One exception on the east side of the canal is the coastline near Indian Point, which would have a Retention VQO. Most of the Cleveland Peninsula side (west) of Behm Canal would have an adopted VQO of Partial Retention and Retention, and, overall, would retain a natural setting due to the Semi-Remote Recreation and Old-Growth Habitat LUDs in this area. The southern end of the peninsula and the western slopes of Port Stewart have a Partial Retention VQO. Alternative 2 would produce no change to the visual management of this viewshed.

Under Alternatives 3, 5, and 7, the Cleveland Peninsula would be allocated to the Recommended Wilderness LUD. This alternative would assign the entire west side of the Behm Canal viewshed to the Retention VQO, to be managed in a natural setting. Alternative 4 would result in a similar change from the Partial Retention to the Retention VQO, but it would be limited to approximately 12 miles of the southernmost part of the peninsula. Essentially no management change would occur in this area because it is currently in the Semi-Remote Recreation LUD and managed in a natural setting. Alternatives 6 and 8 would place the majority of this viewshed into Retention VQO, from Black Island and Yes Bay south to Clarence Strait. Under Alternatives 6 and 8, parts of Neets Bay and Traitors Cove, Hassler Island, and shoreline around Francis Cove are the only areas that would retain the Partial Retention, Modification, and Maximum Modification VQOs.

Table 3.3-43
Adopted VQOs for Selected Viewsheds by Alternative [1, 2]

Travel Route/ Viewshed	Alternative							
	1	2	3	4	5	6	7	8
Behm Canal								
Retention	26,193	26,193	62,915	45,208	62,915	89,821	62,915	87,378
Partial Ret.	46,510	46,510	25,388	27,495	25,388	4,446	25,388	5,201
Modification	18,771	18,771	11,801	18,771	11,801	8,192	11,801	9,113
Max. Mod.	14,069	14,069	5,439	14,069	5,439	3,084	5,439	3,852
Chatham Strait								
Retention	391,776	391,776	404,221	404,221	404,213	511,576	422,047	510,197
Partial Ret.	78,913	78,913	66,468	66,468	66,484	8,273	56,337	8,273
Modification	18,424	18,424	18,424	18,424	18,424	10,517	18,210	10,963
Max. Mod.	81,724	81,724	81,724	81,724	81,716	40,471	74,243	41,404
Cholmondeley Sound								
Retention	9,336	9,336	9,336	9,336	9,336	31,930	9,336	31,242
Partial Ret.	3,485	3,485	3,485	3,485	3,485	45	3,485	107
Modification	11,927	11,927	11,927	11,927	11,927	934	11,927	1,316
Max. Mod.	11,609	11,609	11,609	11,609	11,609	3,449	11,609	3,692
Clarence Strait								
Retention	55,067	55,067	80,276	72,429	80,276	112,265	101,064	111,473
Partial Ret.	32,975	32,975	15,152	15,613	15,152	3,128	8,374	3,551
Modification	34,168	34,168	29,343	34,168	29,343	13,850	19,070	14,470
Max. Mod.	10,984	10,984	8,423	10,984	8,423	3,951	4,686	3,699
Duncan Canal								
Retention	27,530	27,530	42,393	29,778	42,392	54,081	48,896	52,605
Partial Ret.	18,262	18,262	8,988	16,015	8,988	1,172	3,450	1,596
Modification	8,259	8,259	6,411	8,259	6,412	3,930	6,137	4,607
Max. Mod.	5,497	5,497	1,756	5,497	1,756	365	1,066	741
Eastern Passage								
Retention	18,774	18,774	18,774	18,774	18,774	62,196	18,774	69,515
Partial Ret.	38,384	38,384	38,384	38,384	38,384	8,732	38,384	1,999
Modification	14,155	14,155	14,155	14,155	14,155	6,265	14,155	6,265
Max. Mod.	13,258	13,258	13,258	13,258	13,258	7,378	13,258	6,792
Ernest Sound								
Retention	58,467	58,467	63,461	58,467	63,462	99,421	76,046	99,421
Partial Ret.	14,796	14,796	14,481	14,796	14,481	104	6,306	104
Modification	15,911	15,911	13,185	15,911	13,185	728	8,775	728
Max. Mod.	14,043	14,043	12,089	14,043	12,089	2,963	12,089	2,963
Frederick Sound								
Retention	183,897	183,897	216,301	204,768	191,970	313,090	252,478	306,936
Partial Ret.	79,980	79,980	52,800	59,109	79,980	9,852	42,415	10,265
Modification	30,283	30,283	26,323	30,283	30,131	9,487	17,319	13,567
Max. Mod.	53,501	53,501	52,237	53,501	45,579	15,232	35,449	16,893
Helm Bay								
Retention	-	-	14,525	14,525	14,525	14,525	14,525	14,525
Partial Ret.	14,525	14,525	-	-	-	-	-	-
Modification	-	-	-	-	-	-	-	-
Max. Mod.	-	-	-	-	-	-	-	-
Hyder/Salmon River Highway								
Retention	4,548	4,548	4,548	4,548	4,548	25,519	4,548	24,845
Partial Ret.	21,434	21,434	21,434	21,434	21,434	463	21,434	1,137
Modification	-	-	-	-	-	-	-	-
Max. Mod.	-	-	-	-	-	-	-	-
Icy Strait								
Retention	128,405	128,405	128,405	128,405	130,060	162,941	143,576	162,941
Partial Ret.	14,979	14,979	14,979	14,979	14,976	4,352	5,659	4,352
Modification	6,570	6,570	6,570	6,570	6,570	3,442	6,570	3,442
Max. Mod.	31,229	31,229	31,229	31,229	29,577	10,448	25,379	10,448

Table 3.3-43 (continued)
Adopted VQOs for Selected Viewsheds by Alternative [1, 2]

Travel Route/ Viewshed	Alternative							
	1	2	3	4	5	6	7	8
Lynn Canal								
Retention	11,909	11,909	11,909	11,909	15,640	153,017	145,592	150,348
Partial Ret.	108,169	108,169	108,169	108,169	104,438	1,798	9,224	2,292
Modification	32,482	32,482	32,482	32,482	32,482	1,270	1,270	3,446
Max. Mod.	3,565	3,565	3,565	3,565	3,565	40	40	40
Peril Strait/Neva-Olga Strait/Sitka								
Retention	64,503	64,503	78,180	64,503	94,589	156,638	94,691	153,117
Partial Ret.	40,439	40,439	38,832	40,439	37,420	8,590	37,420	10,623
Modification	8,561	8,561	6,939	8,561	6,415	2,643	6,381	2,702
Max. Mod.	67,572	67,572	57,124	67,572	42,651	13,204	42,583	14,633
Salmon Bay Lake								
Retention	6,371	6,371	6,371	6,371	9,000	7,616	9,000	7,616
Partial Ret.	1,894	1,894	1,894	1,894	-	1,143	-	1,143
Modification	735	735	735	735	-	241	-	241
Max. Mod.	-	-	-	-	-	-	-	-
Stephens Passage								
Retention	279,773	279,773	279,773	279,773	304,258	419,770	352,095	419,435
Partial Ret.	98,687	98,687	98,687	98,687	92,742	3,824	71,499	4,065
Modification	12,043	12,043	12,043	12,043	11,890	33	33	34
Max. Mod.	33,124	33,124	33,124	33,124	14,736	-	-	93
Stikine Strait								
Retention	21,358	21,358	21,358	21,358	21,358	53,673	21,468	58,959
Partial Ret.	41,560	41,560	41,560	41,560	41,560	16,011	41,450	10,726
Modification	2,379	2,379	2,379	2,379	2,379	533	2,379	533
Max. Mod.	5,014	5,014	5,014	5,014	5,014	93	5,014	93
Sumner Strait								
Retention	108,729	108,729	135,755	100,400	152,011	181,733	170,630	181,440
Partial Ret.	58,861	58,861	38,492	40,787	38,468	22,422	30,340	22,716
Modification	24,659	24,659	20,024	51,062	18,194	13,455	16,115	13,455
Max. Mod.	37,810	37,810	35,789	37,810	21,388	12,450	12,975	12,450
Sweetwater Lake/Honker Divide								
Retention	14,881	14,881	14,881	14,881	18,131	22,986	18,131	23,587
Partial Ret.	11,643	11,643	11,643	11,643	9,686	5,982	9,686	7,405
Modification	6,471	6,471	6,471	6,471	5,178	4,904	5,178	2,892
Max. Mod.	1,938	1,938	1,938	1,938	1,938	1,094	1,938	1,049
Tenakee Inlet to Tenakee Springs								
Retention	13,467	13,467	13,467	13,467	13,474	21,275	16,797	21,275
Partial Ret.	1,667	1,667	1,667	1,667	1,667	1,290	1,290	1,290
Modification	742	742	742	742	742	607	607	607
Max. Mod.	12,845	12,845	12,845	12,845	12,838	5,548	10,027	5,548
West Coast Waterway/Prince of Wales								
Retention	31,167	31,167	31,167	31,167	38,010	61,658	38,010	60,244
Partial Ret.	19,458	19,458	19,458	19,458	17,454	5,361	17,454	6,130
Modification	14,118	14,118	14,118	14,118	12,064	8,716	12,064	9,212
Max. Mod.	23,494	23,494	23,494	23,494	20,709	12,503	20,709	12,653
Wrangell Narrows								
Retention	13,808	13,808	13,808	13,808	13,808	34,705	20,001	31,862
Partial Ret.	20,886	20,886	20,886	20,886	20,886	3,622	15,424	4,050
Modification	5,244	5,244	5,244	5,244	5,244	2,175	4,986	4,589
Max. Mod.	604	604	604	604	604	40	131	40
Zimova Strait								
Retention	23,062	23,062	23,062	23,062	23,062	44,816	32,531	47,338
Partial Ret.	21,081	21,081	21,081	21,081	21,081	4,348	12,878	4,348
Modification	8,837	8,837	8,837	8,837	8,837	5,874	7,587	5,860
Max. Mod.	6,940	6,940	6,940	6,940	6,940	4,882	6,925	2,373

[1] VQO terms are defined in the *Affected Environment* portion of this section.
[2] The acres in the table are only those seen from a Visual Priority Travel Route and Use Area.

Chatham Strait

Alternative 1 (No Action) would manage this viewshed in a natural setting because most of the land is allocated to the Old-Growth Habitat, Remote Recreation, Semi-Remote Recreation, and Wilderness LUDs. One portion of the viewshed just below Tenakee Inlet is allocated to the Timber Production and Scenic Viewshed LUDs, which has the adopted VQOs of Partial Retention and Maximum Modification. Alternative 2 would produce no change to the visual management of this viewshed.

Under Alternatives 3, 4 and 5, a small portion of land in this viewshed would change from Partial Retention VQO to Retention. The visual resource management for these landscapes would not change because these areas are currently in the Semi-Remote Recreation LUD. The VQO change under Alternatives 3, 4, and 5 occurs in the outer Bay of Pillars and southern Kuiu Island. Alternative 7 includes visual management changes to a few areas in the north part of Chatham Strait (including an area south of Tenakee Inlet). These areas are seen in the middleground and background of this viewshed and would change from a Maximum Modification VQO to Retention VQO. Alternative 7 would modify the Partial Retention VQO to Retention VQO in the Bay of Pillars, southern Kuiu, and North Admiralty Island areas. This change from Partial Retention to Retention VQO would not present a modification to the visual management of the landscape in this viewshed because the land is currently allocated to the Semi-Remote Recreation LUD. Alternative 6 and 8 would have the same effects as Alternative 7, except more land currently in the Maximum Modification VQO would be changed to Retention VQO. This change would be in the middleground and background areas around False Bay, between Tenekee Inlet and Peril Strait, and northern Kuiu Island. Under Alternative 8, seen areas south of Saginaw Bay would retain their current VQOs of Maximum Modification and Modification, while Alternative 6 would change the VQO in this area to Retention.

Cholmondeley Sound

Alternative 1 (No Action) would manage this viewshed with Retention, Partial Retention, Modification, and Maximum Modification VQOs. Most of this viewshed would be allocated to the Timber Production and Modified Landscape development LUDs or in private ownership. Pockets of the Old-Growth Habitat LUD in West Arm and along the north shore of the bay would maintain the landscape in a natural setting. Overall, most of the outer part of the bay would be in an altered condition because of harvest on private lands and the amount of National Forest System lands in the Timber Production LUD. Alternatives 2, 3, 4, 5, and 7 would produce no change to the visual management of this viewshed.

Under Alternatives 6 and 8, the majority of this viewshed would adopt the Retention VQO, which would alter the area's visual resource management direction. Under Alternative 6, only land along the south shore and in Dora Bay would retain the Modification and Maximum Modification VQOs. Under Alternative 8, a small portion of the Timber Production LUD along West Arm would also retain the Modification and Maximum Modification VQOs.

Clarence Strait

Alternative 1 (No Action) would allocate virtually all of the west side of Clarence Strait into Modified Landscape LUD and most of the east side into Wilderness, Old-Growth Habitat, or Semi-Remote Recreation LUD. The west side would, therefore, be managed for Modification VQO and the east side would be managed for a natural setting. Alternative 2 would produce no change to the visual management of this viewshed.

Alternative 4 would change the VQO for the southern half of the Cleveland Peninsula from Partial Retention to Retention. The visual resource management focus for this area would not change because it is currently allocated to Semi-Remote Recreation LUD and is managed for a natural setting. Under Alternatives 3 and 5, the Cleveland Peninsula would be allocated to Recommended Wilderness LUD. This alternative would adopt a Retention VQO for this area, which would manage it for a natural setting. The visual resource management for most the Cleveland Peninsula would not change noticeably because it is currently allocated to Partial Retention VQO in the Semi-Remote Recreation LUD. Under Alternatives 3 and 5, the visual management focus would change from Modification and Maximum Modification to Retention in the Union Bay and Mount Burnett areas. Overall, Alternatives 3 and 5 would manage the entire east side of this viewshed for a natural setting.

Changes under Alternative 7 are similar to Alternatives 3 and 5, except this alternative would also change land around Mosman and Burnett Inlets on Etolin Island from Partial Retention, Modification, and Maximum Modification VQOs to Retention VQO. The changes under Alternatives 6 and 8 are comparable to Alternative 7, except areas along the west side of the strait would also be managed with a Retention VQO. Under Alternatives 6 and 8, the change in VQOs from the Partial Retention, Modification, and Maximum Modification to Retention VQO would occur around Sweetwater Lake and Baird Peak. In addition to these areas, Tolstoi Mountain would change from the Modification to the Retention VQO under Alternative 6.

Duncan Canal

Alternative 1 (No Action) would allocate most of the waterway as Wilderness, Old-Growth Habitat, or Semi-Remote Recreation LUD, thereby adopting a Retention or Partial Retention VQO and managing the viewshed for a natural setting. A relatively small portion of the east side of this waterway is allocated to modified landscape and would be managed in Partial Retention and Modification VQOs. Alternative 2 would produce no change to the visual management of this viewshed.

Alternatives 3 and 5 would manage the entire west side of this viewshed with a Retention VQO. The visual resource management focus for the upper coastline would not change because it is currently allocated to a Partial Retention VQO in the Semi-Remote Recreation LUD and, therefore, managed for a natural setting. Most of the change in visual management would occur in the middleground and background viewing areas (from Partial Retention, Modification and Maximum Modification to Retention VQO). Alternative 4 would allocate the land around Castle River to the Recommended Wilderness LUD. The visual management direction would not change under this alternative because the area is already managed for a natural setting (Semi-Remote Recreation LUD). Alternative 7 is similar to Alternatives 3 and 5, with the addition of Woewodski Island and the Duncan Creek area to be managed with Retention VQO. Overall, Alternative 7 would manage the entire viewshed in a natural setting, except for the Modified Landscape LUD in the east side of the canal. Alternative 6 and 8 are similar to Alternative 7, although these alternatives would also change the VQO in portions the Modified Landscape LUD on Mitkof Island from Modification to Retention.

Eastern Passage

Alternative 1 (No Action) would allocate half of this viewshed into the Old-Growth Habitat and Semi-Remote Recreation LUDs and would manage these areas for a natural setting. The Scenic Viewshed LUD would make up the other half of the viewshed and would be managed as Partial Retention and Retention VQOs. Alternatives 2, 3, 4, 5, and 7 would produce no change to the visual management of this viewshed.

Under Alternative 6, the entire eastern side of the passage and the southwest part of the route would be managed in the Retention VQO. Most of the change under this alternative would be in areas that are currently allocated to the Scenic Viewshed LUD and are generally managed to meet the Partial Retention, Modification, and Maximum Modification VQOs. Alternative 8 is similar to Alternative 6, except that in Alternative 8, the National Forest System land around Wrangell would also be changed from a Partial Retention VQO to a Retention VQO. Under Alternative 8, the central west side of this route is the only area not managed with a Retention VQO.

Ernest Sound

Alternative 1 (No Action) would allocate most of this waterway to the Wilderness, Old-Growth Habitat, LUD II, and Semi-Remote Recreation non-development LUDs. These LUDs would manage the land for a natural setting. The rest of this waterway would be allocated to the Modified Landscape and Scenic viewshed development LUDs, which would manage land to meet the Partial Retention, Modification, and Maximum Modification VQOs. Most of the development LUDs would be located in Vixen Inlet, Union Bay, south Wrangell Island, and Deer Island. Alternatives 2 and 4 would produce no change to the visual management of this viewshed.

Alternatives 3 and 5 would change the Vixen Inlet/ Mount Burnett area VQOs from the Partial Retention, Modification, and Maximum Modification VQOs to the Retention VQO. In addition to the areas added to the Retention VQO under Alternatives 3 and 5, Alternative 7 would also allocate land north of South Etolin Wilderness Area into a Recommended Wilderness LUD. This addition would manage most of the route as a natural setting. Alternatives 6 and 8 would put almost the entire route in the Retention VQO, except for a very small portion of land around Frosty Bay. Alternatives 6 and 8 would generally manage the entire viewshed for a natural setting.

Frederick Sound

Under Alternative 1 (No Action), a little over half of this waterway would be allocated to the Wilderness, Old-Growth Habitat, and Semi-Remote Recreation LUDs, which would manage the land in a natural setting. The rest of this waterway would be allocated to the Scenic Viewshed, Timber Production, and Modified Landscape development LUDs. These LUDs would manage the scenery with a Partial Retention, Modification, or Maximum Modification VQO. Alternative 2 would produce no change to the visual management of this viewshed.

Alternative 3 would change the Francis Anchorage and Dry Bay areas, mostly in the Partial Retention VQO, to a Retention VQO. The only change in the management focus would be along the north shoreline where the development LUDs are currently located. Alternative 4 would change the Francis Anchorage area from the Partial Retention VQO to Retention. The visual resource management focus for this area would not change under this alternative because it is currently allocated to the Semi-Remote Recreation LUD, which manages land for a natural setting. Under Alternative 5, the only VQO change would occur in the Dahlgren Peak area where the Maximum Modification VQO would be Retention. Alternative 6 would manage the entire viewshed in a Retention VQO. Out of all the alternatives, Alternative 6 would present the most modification to the visual resource management in this viewshed. Alternative 7 would manage the entire northeast part of this route in a Retention VQO. Under this alternative, the overwhelming majority of the viewshed would be managed in a natural setting. Under Alternative 8, all of the viewshed would be managed with a Retention VQO for natural setting, except for a relatively small portion of the Partial Retention VQO south of Saginaw Bay.

Helm Bay
Under Alternative 1 (No Action), the entire viewshed would realistically be managed in a natural setting because the land is allocated to Semi-Remote Recreation LUD with a Partial Retention VQO. Alternative 2 would produce no change to the visual management of this viewshed.

Alternatives 3, 4, 5, 6, 7, and 8 would change the entire viewshed from Partial Retention VQO to Retention VQO. No change in visual management would ensue under these alternatives because the land is currently managed for a natural setting.

Hyder/Salmon River Highway
Alternative 1 (No Action) would allocate the west side of this viewshed to the Semi-Remote Recreation LUD, thereby maintaining a natural setting. The east side of the highway and river would be allocated to the Scenic Viewshed LUD and would be managed for Retention and Partial Retention VQOs. Alternatives 2, 3, 4, 5, and 7 would produce no change to the visual management of this viewshed.

Alternatives 6 and 8 would manage the entire viewshed with a Retention VQO. The only change in visual management would be in the eastern part of this viewshed, which is currently allocated to the Scenic Viewshed LUD.

Icy Strait
Under Alternative 1 (No Action), most of this viewshed would be managed for a Retention VQO. The other parts of this waterway would be allocated to the Scenic Viewshed and Timber Production development LUDs. These LUDs would manage the land with VQOs ranging from Partial Retention to Maximum Modification. The development LUDs would be located east and southeast of Hoonah and north of Hoonah, across the strait. Alternatives 2, 3, 4, and 5 would present no change to the visual management of this viewshed.

In small portions along the northeast part of the Icy Strait, Alternative 7 would change the VQOs from Partial Retention and Maximum Modification to Retention. Alternatives 6 and 8 are similar to Alternative 7, with the additional VQO change in the south side of the strait near Hoonah from Partial Retention and Maximum Modification to Retention. Under Alternatives 6 and 8, all of the viewshed would be managed with a Retention VQO, except for a few small areas close to Hoonah and north across the strait from Hoonah.

Lynn Canal
Alternative 1 (No Action) would allocate most of this waterway to the Semi-Remote Recreation and Old-Growth Habitat non-development LUDs, which would manage the land in a natural setting. A few spots of the Modified Landscape, Scenic Viewshed, and Timber Production LUDs would be scattered along this waterway. These LUDs would have VQOs ranging from Partial Retention to Maximum Modification. Alternatives 2, 3, and 4 would present no change to the visual management of this viewshed.

Alternative 5 would change the VQO on Sullivan Island from Partial Retention to Retention. No change in visual management would ensue under this alternative because the land is currently allocated to Semi-Remote Recreation LUD and managed for a natural setting. Alternatives 6 and 8 would manage the entire viewshed for a Retention VQO and would result in the most change in the visual resource management of this viewshed. Alternative 7 is similar to Alternatives 6 and 8, except under Alternative 7, small areas on Lincoln and Shelter Island, east of Chilkat Islands and east of Benjamin Island, would retain their current VQO of Partial Retention. Like Alternatives 6 and 8, the entire viewshed would be managed for a

natural setting because the areas with Partial Retention VQO would be allocated to Semi-Remote Recreation LUD.

Mendenhall Glacier

Alternative 1 (No Action) would manage the entire viewshed in a natural setting because of the land allocations to Special Interest Area, Semi-Remote Recreation, or Remote Recreation LUDs. One exception is in the foreground in the Special Interest Area LUD, which has a VQO of Modification to accommodate the developed recreation and interpretive portions of this area. This exception would not effect the natural setting over the landscape in this area. Alternatives 2, 3, 4, 5, and 7 would present no change to the visual management of this viewshed.

Alternatives 6 and 8 would change the VQOs in the entire viewshed to Retention. Under Alternatives 6 and 8, the only effect on visual management would take place in the foreground on land allocated to the Special Interest Areas LUD, which might preclude developing recreation facilities and interpretive centers unless those developments meet the Retention VQO.

Peril Strait/Neva-Olga Strait/Sitka

Alternative 1 (No Action) would manage most of Peril Strait in VQOs ranging from Partial Retention to Maximum Modification. The area allocated to the Wilderness LUD and pockets of the Old-Growth Habitat LUD scattered along this waterway would be managed with a Retention VQO. Most of waterway from Neva-Olga Strait to Sitka would be allocated to the Semi-Remote Recreation LUD, which would manage the landscape for a natural setting. Alternatives 2 and 4 would present no change to the visual management of this viewshed.

Alternative 3 would allocate the area around Ushk Bay south to Dry Bay (Peril Strait) to the Recommended Wilderness LUD, which would change the VQOs from Partial Retention, Modification, and Maximum Modification to Retention. Most of this change in visual resource management would occur in the middleground and background viewing areas. Alternatives 5 and 7 are similar to Alternative 3 except, in Alternatives 5 and 7, the Timber Production LUD area around Saook Bay would also be changed from the Maximum Modification to Retention VQO. Alternatives 6 and 8 would manage the entire waterway in a natural setting with a Retention VQO, except for a few relatively small areas on north and south shorelines of eastern Peril Strait. Under Alternative 8, more land in northeast Peril Strait would retain the Partial Retention, Modification, and Maximum Modification VQOs, than under Alternative 6.

Salmon Bay Lake

Alternative 1 (No Action) would manage most of this viewshed in a Retention VQO. Under Alternative 1, the middleground viewing areas would have a a Partial Retention VQO and the background viewing areas would have a Modification VQO. Alternatives 2, 3, and 4 would present no change to the visual management of this viewshed.

Alternative 5 and 7 would manage the entire viewshed in a Retention VQO. Under Alternatives 5 and 7, most of the change to the Retention VQO would take place in areas seen in middleground and background from Salmon Bay Lake. Alternatives 6 and 8 would change some areas with the Partial Retention and Modification VQOs to Retention, which would manage the majority of the land for a natural setting. Under Alternatives 6 and 8, however, the roaded areas would retain their current VQOs of Partial Retention and Modification.

Stephens Passage
Alternative 1 (No Action) would allocate most of this area in the Wilderness National Monument, Semi-Remote Recreation, and Old-Growth Habitat non-development LUDs, which would manage the landscape for a natural setting. The Scenic Viewshed and Timber Production LUDs would be scattered along this waterway. These development LUDs would manage the area with VQOs ranging from Partial Retention to Maximum Modification. Alternatives 2, 3, and 4 would present no change to the visual management of this viewshed.

Alternative 5 would change the visual management west of the Chuck River Wilderness Area and Dahlgren Peak from Partial Retention and Maximum Modification VQOs to a Retention VQO. Under Alternative7, the entire east side of Stephens Passage would be managed with a Retention VQO. Land east of Juneau, allocated to the Scenic Viewshed LUD, would be the only area not managed for a natural setting under Alternative 7. Under Alternatives 6 and 8, the entire waterway would be managed with the Retention VQO.

Stikine Strait
Alternative 1 (No Action) would manage almost all of this area in the Partial Retention and Retention VQOs. The modification VQO would be allocated to some middleground views of Zarembo Island. Alternatives 2, 3, 4, 5, and 7 would present no change to the visual management of this viewshed.

Alternative 6 would change some Partial Retention and Maximum Modification VQOs to the Retention VQO on east Zarembo, Woronkofski, and north Etolin Islands. Alternative 8 is similar to Alternative 6, except north Wrangell Island would also change to the Retention VQO. Under both Alternatives 6 and 8, the viewshed would be dominated by the Retention VQO.

Sumner Strait
Alternative 1 (No Action) would allocate this waterway to a mix of LUDs including Scenic Viewshed, Timber Production, Modified Landscape, LUD II, Semi-Remote Recreation, Old-Growth Habitat, and Wilderness. The resulting VQOs would range from Retention to Maximum Modification. Alternative 2 would present no change to the visual management of this viewshed.

Alternative 3 would change southern Kuiu Island and areas around Reid and Alvin Bay to the Retention VQO. This alternative would produce a visual resource management change in only the Reid and Alvin Bay areas because southern Kuiu Island is currently allocated to the Semi-Remote Recreation LUD. Alternative 4 is similar to Alternative 3, however, only southern Kuiu Island is changed to the Retention VQO in Alternative 4. In addition to the effects under Alternative 3, Alternative 5 would change the VQO around southwest Kupreanof Island and Mitkof Island from the Maximum Modification VQO to Retention. Alternative 7 is similar to Alternative 5, however, VQOs on northeast Prince of Wales and Woronkofski Island would also change to the Retention VQO. Almost all of this viewshed would be managed with the Retention VQO under Alternatives 6 and 8. The areas not changed to a Retention VQO under Alternatives 6 and 8 are located in north Prince of Wales, north Zarembo Island, and the islands northeast of Zarembo Island. The VQOs in these excluded areas would range from Partial Retention to Modification.

Sweetwater Lake/Honker Divide
Under Alternative 1 (No Action), most of this area would be managed to meet a Retention VQO because most of the land is in the Old-Growth Habitat, Recreational River, or Scenic River LUD. The rest of the area would be allocated to the Modified Landscape, Scenic Viewshed, and Timber Production LUDs, which would have

VQOs ranging from Partial Retention to Maximum Modification. Alternatives 2, 3, and 4 would result in no change to the visual management of this viewshed.

Under Alternatives 5, 6, 7, and 8, the land with the Partial Retention and Modification VQOs east of Thorne Lake would be changed to the Retention VQO. Alternative 8 would also modify the VQOs in areas around Sweetwater Lake from Partial Retention and Modification to Retention.

Tenakee Inlet to Tenakee Springs

Alternative 1 (No Action) would allocate most of this area to the Old-Growth Habitat and LUD II LUDs, which would manage land with a Retention VQO. The rest of this viewshed would be allocated to the Scenic Viewshed and Timber Production LUDs. These LUDs would manage the landscape with VQOs ranging from Partial Retention to Maximum Modification. Alternatives 2, 3, 4, and 5 would present no change to the visual management of this viewshed.

Under Alternative 7, some of the land west of Trap Bay with a Maximum Modification VQO would change to the Retention VQO. In addition to the changes under Alternative 7, Alternatives 6 and 8 would change the VQO in land north of Tenakee Springs from Maximum Modification to Retention.

West Coast Waterway/Prince of Wales

Under Alternative1 (No Action), this viewshed would be managed with a variety of VQOs ranging from Retention to Maximum Modification. Alternative 1 would assign an adopted VQO of Retention to land allocated to the LUD II and Old-Growth Habitat LUDs. In land allocated to the Modified Landscape LUD in Calder Bay and along the north side of Dry Pass, the foreground viewing areas would be managed in a Partial Retention VQO. The Semi-Remote Recreation LUD located north of Craig would essentially manage land for natural setting. The remainder of the viewshed would be allocated to the Timber Production LUD, which would have Modification and Maximum Modification VQOs. Alternatives 2, 3, and 4 would result in no change to the visual management of this viewshed.

Under Alternatives 5 and 7, San Fernando Island and east Kosciusko Island would change to Retention VQO. Because San Fernando Island is currently managed for a natural setting (adopted VQO of Partial Retention in the Semi-Remote Recreation LUD), the only realistic visual management change is in east Kosciucko Island. Land in east Kosciusko Island would change from a Modification and Maximum Modification VQO to Retention. Alternatives 6 and 8 are similar to Alternative 7, however, VQOs around Calder and Salt Lake Bay would also change from Partial Retention, Modification, and Maximum Modification to Retention.

Wrangell Narrows

Alternative 1 (No Action) would manage most of this viewshed in the Retention and Partial Retention VQOs. Pockets of land allocated to the Modified Landscape LUD would have a Modification VQO. Alternatives 2, 3, 4, and 5 would present no change to the visual management of this viewshed.

Under Alternative 7, Woewodski Island and a small part of the Lindenburg Peninsula would change from the Partial Retention, Modification, and Maximum Modification VQOs to the Retention VQO. Alternatives 6 and 8 are similar to Alternative 7, except the entire east side of the viewshed and parts of north and south Mitkof Island would be managed with a Retention VQO. Under Alternative 6, more land would have a Retention VQO on Mitkof Island than under Alternative 8.

Zimova Strait

Under Alternative 1 (No Action), most of the viewshed would be managed in a Retention or Partial Retention VQO because most of the land is in the Scenic Viewshed or Old-Growth Habitat LUD. The remainder of this viewshed would be allocated to the Modified Landscape or Timber Production LUDs, which have VQOs of Modification and Maximum Modification. Alternatives 2, 3, 4, and 5 would present no change to the visual management of this viewshed.

Under Alternative 7, the southwest part of this viewshed changes from Partial Retention and Modification VQOs to a Retention VQO. In addition to the changes under Alternative 7, Alternatives 6 and 8 would change the VQOs in land near Chichagof Pass and South Wrangell Island from Partial Retention, Modification, and Maximum Modification to Retention. Under Alternative 8, the VQO in land north of Thoms Lake would also change to the Retention VQO.

Subsistence

Affected Environment

Subsistence hunting, fishing, trapping, and gathering activities represent a major focus of life for many Southeast Alaska residents. Some individuals participate in subsistence activities to supplement personal income and provide needed food. Others pursue subsistence activities to perpetuate cultural customs and traditions. Still others participate in subsistence activities for reasons unconnected with income or tradition. For all these individuals, subsistence is a lifestyle reflecting deeply held attitudes, values, and beliefs.

Within the context of Southeast Alaska's highly seasonal and cyclical resource-based employment, subsistence harvest of fish and wildlife resources takes on special importance. The use of these resources may play a major role in supplementing cash incomes during periods when the opportunity to participate in the wage economy is either marginal or nonexistent. Because of high prices of commercial products provided through the retail sector of the cash economy, especially in remote communities, the economic role of locally available fish and game takes on added importance.

The opportunity to participate in subsistence activities reinforces a variety of cultural and related values in both Native and non-Native communities. For example, distribution of fish and wildlife contributes to the cohesion of kinship groups and to community stability through sharing of resources derived through harvest activities. Subsistence resources provide the foundation for Native culture, ranging from the totemic basis of clan divisions, to norms governing the distribution of wealth in potlatch ceremonies, to reinforcement of basic values of respect for the earth and its resources. Participating in subsistence activities contributes to the self-reliance, independence, and ability to provide for oneself–values that social surveys indicate are important reasons why many non-Native people emigrate to or remain in Southeast Alaska (Alves, 1979).

While there are a variety of cultural, popular, and sociological definitions and interpretations of subsistence, Congress addressed this subject in Title VIII of the 1980 Alaska National Interest Lands Conservation Act (ANILCA). Section 803 of ANILCA defines subsistence use as:

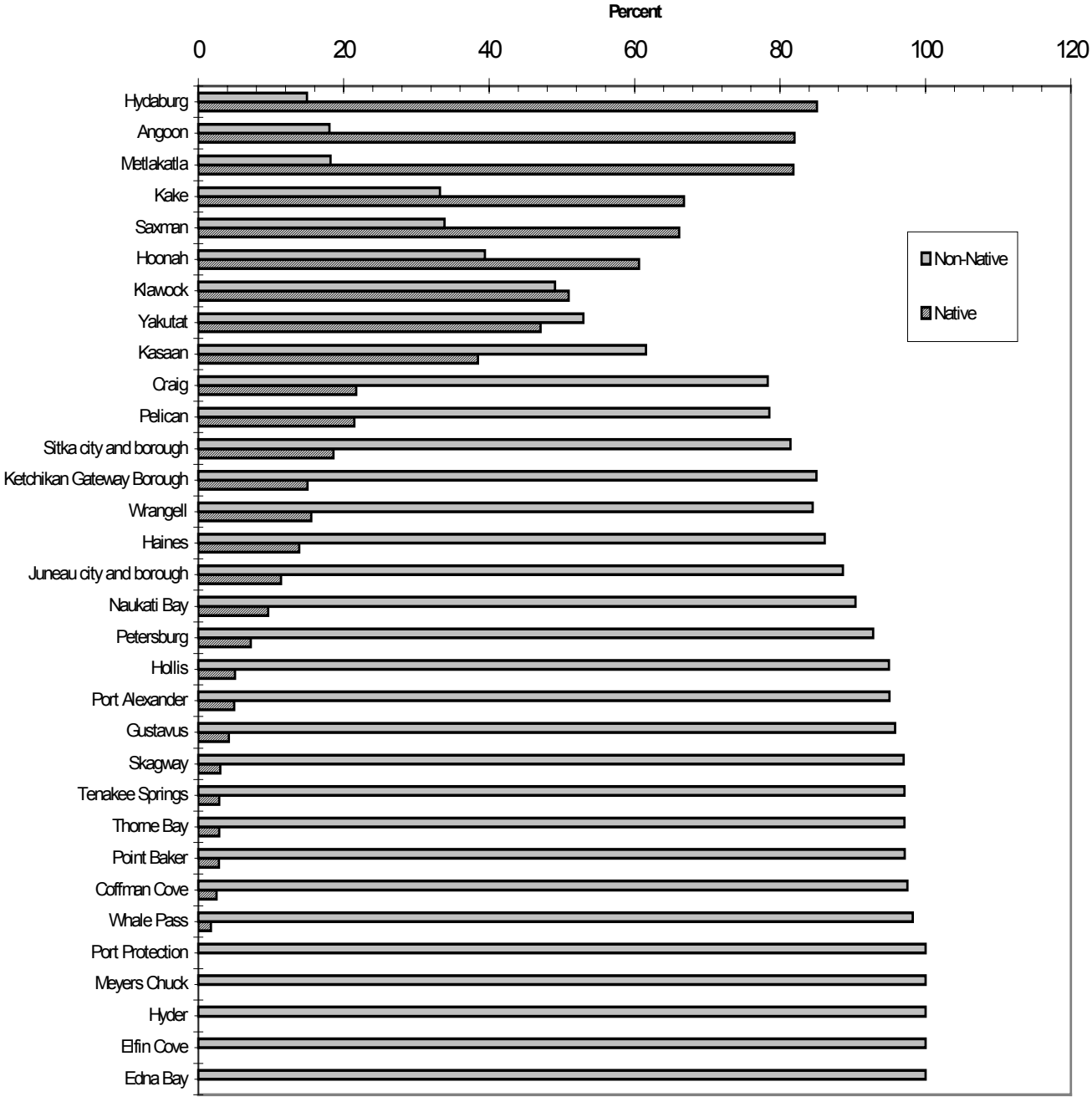
> the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources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

ANILCA provides for "the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives, on the public lands." It also states, in part, that "customary and traditional" subsistence uses of the renewable resources "shall be the priority consumptive uses of all such resources on the public lands of Alaska."

Legal challenges, increased competition from other users of the Tongass National Forest, introduction of other cultures and races into the one-time predominantly Native societies, alternative food sources, transportation improvements, and increases in jobs and income have prompted Native residents of Southeast Alaska to

actively protect subsistence rights of Alaskan Natives. The Native Alaskan population represents 23 percent of the total population of Southeast Alaska's 30 rural communities (Figure 3.3-4). The importance of subsistence rights is of paramount concern to this segment of the region. Historic subsistence use on the Tongass is described in the 1997 Tongass Forest Plan Revision Final EIS.

Figure 3.3-4
Native/Non-Native Components of Southeast Communities, 2000



Source: U.S. Census Bureau, 2001b.

Subsistence Users

There is now a discrepancy between how federal law and state law defines subsistence users. The federal subsistence law clearly states that only rural Alaska residents qualify for subsistence hunting and fishing on federal lands. Alaska residents living in urban areas can harvest under sport, personal use, or commercial regulations, but not under subsistence regulations. The rural preference is contained in ANILCA.

Until December 1989, the State's subsistence law, like federal law, permitted only rural residents to qualify for subsistence hunting and fishing; however, the Alaska Supreme Court ruled in *McDowell v. State of Alaska* that the rural provision was not permissible under the Alaska Constitution. Consequently, every Alaska resident qualifies as a subsistence user on State lands.

Southeast Alaska has a population of approximately 73,000 people. Most of this population is located in 32 established communities, with Juneau and Ketchikan Gateway Borough accounting for approximately 60 percent of the regional population. Juneau and Ketchikan, the only two designated urban communities in Southeast Alaska, do not qualify for subsistence use on federal, public lands under current federal laws and regulations. Sitka, Petersburg, and Wrangell account for about 20 percent of the region's total population. Most of the remaining 20 percent of Southeast Alaska's population live in 27 small communities throughout the region.

In addition to permanent communities, there are a few floating and land-based logging camps across the Tongass National Forest that are large enough and have existed long enough to have an effect on local uses of fish and wildlife. Camp residents appear to be split between Alaska residents and nonresidents with some leaving Alaska for the winter months when the working season is over (ADF&G, 1989).

A relatively small number of Southeast Alaska residents live at remote isolated locations. These include people living at homesites throughout Southeast Alaska, at summer fishing sites along the outer coast, tree thinners camped near areas where they have Forest Service contracts, trappers, and people living on floathouses and on fishing boats. This diverse group is typically transient, generally has very low cash income, and is closely tied to non-commercial harvest of fish, game, and other renewable natural resources.

As in other parts of Alaska, Southeast Alaska's population grew with the expansion of government services following the oil boom. In the late 1980s the population decreased, but is now increasing again. A number of new communities have evolved around State land selections or timber harvesting activities. Edna Bay, Coffman Cove, North Whale Pass, Thorne Bay, and other small Prince of Wales Island communities are examples.

Economy

Subsistence use of fish and wildlife continues to be an important component of the economies of Southeast Alaska communities. In Native communities, harvest and use of wild resources supported the subsistence-based economy that predated the introduction of cash income. In the modern era, beginning in the late-1700s, the economies of Native communities have undergone a progressive transformation, incorporating cash income into the subsistence-based system. Southeast Alaska communities that settled primarily by non-Native immigrants have also depended on a mix of subsistence use of wild resources and cash income.

Cash income in most Southeast Alaska rural communities is limited and intermittent, and frequently supports the purchase of fuel and equipment that are part of subsistence harvest technology. Subsistence harvests have been found to fill essential food needs in most rural communities in the region. These harvests are also customarily shared among community residents and between members of

different communities. Some subsistence products are traded and bartered within the region. Subsistence harvests are not geared toward market sale or accumulated profit. A mixed subsistence-market economy in which subsistence harvests and cash income are complementary characterizes the economies of most of the region's rural communities (ADF&G, 1994).

The amount of subsistence harvest, and the types of fish and game species and other resources harvested by rural Southeast Alaska households is described in the 1997 Forest Plan Revision Final EIS. The ADF&G Subsistence Community Profile Database (available at http://www.state.ak.us/local/akpages/FISH.GAME/subsist), also presents updated information where it is available.

Where Subsistence Harvest Occurs

Historically, subsistence use occurred where access to the resources cost less in energy than the resources gathered. Many of the gathering activities occurred in easily accessible areas. These activities occurred close to settlements where they could be accessed by foot or boat. Over time, as new technology developed, ease of access meant a movement outward into new resource use areas. The motorboat and development of road systems associated with timber harvest activities in Southeast Alaska have had perhaps the greatest influence on subsistence gathering activity. Today, all communities may either be accessed by motorized boats or many are tied to nearby lands by road systems. As new roads are developed, subsistence use has moved from areas with higher access costs to areas with easily achieved access.

The distribution of subsistence harvest activity is described in further detail in the 1997 Forest Plan Revision Final EIS. Many of the fish and wildlife resource values of Southeast Alaska watersheds, based on the VCU (Value Comparison Unit) classification of the Tongass, are summarized in the Tongass Fish and Wildlife Resource Assessment - 1998 (ADF&G, 1998). This report portrays the relative value of areas for black bear, brown bear, deer, sport fishing, salmon production, and subsistence use. This resource assessment also includes a ranking of the VCUs that have the highest community use values.

Abundance and Distribution

Southeast Alaska subsistence resources include terrestrial wildlife (including deer, moose, mountain goat, black and brown bear, furbearers and small game), waterfowl (including ducks, geese, and seabirds), marine mammals (only the harbor seal), salmon, other finfish, marine invertebrates, plants, and firewood. The abundance and distribution of these resources on the Tongass are described in the 1997 Forest Plan Revision Final EIS, as well as in other sections of this SEIS.

Access

Many Southeast Alaska communities are accessible only by air and water. Only Skagway, Haines, and Hyder have access to the continent (Canada) by road, with many other communities served by ferry, such as the Alaska Marine Highway System.

Road building, a byproduct of timber harvesting and, to a much lesser extent, mining, is an important agent of change in Southeast Alaska. These road networks provide greater access to areas previously unconnected and can affect subsistence both positively and negatively by providing access, dispersing hunting and fishing pressure, and creating the potential for increased competition. On Prince of Wales Island, for example, areas that have become road-connected are now more easily reached through the ferry system, thus providing greater access from Ketchikan, one of the most populated cities in the region. While road systems tend to bring more people into an area, they also give subsistence hunters access to previously remote regions and provide a greater opportunity for subsistence harvest (USDI Fish and Wildlife Service, 1988).

Southeast Alaska is comprised of isolated islands unconnected by road systems; however, with the transportation means available (floatplanes, ferry systems, automobiles, boats), Southeast Alaska residents are very mobile in their subsistence resource use activities. Wrangell, the fifth largest community in Southeast Alaska, has documented their subsistence gathering from the southern tip of Prince of Wales Island to Yakutat, covering most of the islands in between (Kruse and Muth, 1989).

Competition

Southeast Alaska is a land of abundant resources, however, all the resources are not evenly distributed across the Tongass National Forest. Where the resources are confined to island groups or river systems, where access is costly or nonexistent, use of the resources is low. Where the resource is abundant, and a community is present but access by other communities is costly, the resource tends to be used primarily by the community that resides in the area. Where resources are abundant and access is available to local and other communities of Southeast Alaska, competition for the resources may exist (USDA Forest Service, 1988).

Increased competition may result when less expensive access to the area or within the area is provided. Such is the case when road systems are established to local communities. When areas historically not used for subsistence purposes are made available because of easier, more cost-effective access, the new area then tends to be used. When communities with road access to abundant resources are connected to the ferry systems or to commercial air services, competition for the resources may be generated from outside communities with lower abundance of the same resource.

Examples of the effect of ease of access are readily available in Southeast Alaska. Chichagof Island, Prince of Wales Island, and the Yakutat Forelands at one time were isolated portions of the Tongass with limited use from communities in the vicinity. Today, road construction, primarily a result of timber harvest activities, has created relatively large areas in each location readily available from the local community. Access provided by the ferry systems and small commuter planes to Chichagof and Prince of Wales Islands allows relatively easy access by off-island communities. The Yakutat Forelands have been made readily available from the access provided by commercial jet service to the community of Yakutat. Access to the Yakutat Forelands is one of the more popular contacts of the lower 48 to Alaska's abundant fisheries and brown bear populations.

Competition for subsistence resources is likely to increase as long as Southeast Alaska's population grows and additional access is created. The Southeast Alaska Federal Subsistence Regional Advisory Council has noted this increased use of the resources, and recommended decreases in harvest of deer, moose, and other wildlife species for non-rural residents.

Environmental Consequences

The analysis of the likely effects of the SEIS alternatives on subsistence resources and uses is in two parts. Effects on subsistence resources and uses important to each rural community are discussed individually by community in the *Communities* subsection of the *Economic and Social Environment* section. Here, the Forest-wide evaluation is presented, based on general considerations in the three categories of effects previously identified: abundance and distribution, access, and competition. This general analysis relies on the community discussions and also on the Forest-wide effects analyses from the related resource sections (primarily *Fish and Wildlife*) where abundance and distribution are of concern.

Section 810 of ANILCA requires the Forest Service, in determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of National Forest System land in Alaska, to evaluate the potential effects on

subsistence uses and needs, followed by specific notice and determination procedures should there be a significant possibility of a significant restriction of subsistence uses. The Alaska Land Use Council's definition of "significantly restrict subsistence use" is one guideline used in the evaluation: "A proposed action shall be considered to significantly restrict subsistence uses, if after any modification warranted by consideration of alternatives, conditions, or stipulations, it can be expected to result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources." Considerations of abundance and distribution, access, and competition (by non-rural residents) are mentioned.

The U.S. District Court Decision of Record in *Kunaknana v. Watt* provided additional clarification. In part it states: "restrictions for subsistence uses would be significant if there were large reductions in abundance or major redistribution of these resources, substantial interference with harvestable access to active subsistence-use sites or major increases in non-rural resident hunting."

Direct and Indirect Effects

Abundance and Distribution

Based on the 1987 survey information presented above, 61 percent of subsistence resources (by weight) are fish or marine invertebrates, 21 percent are deer, 4 percent are other land mammals, and another 3 percent are marine mammals. Subsistence analysis for the 1997 Forest Plan Revision Final EIS found that the primary subsistence resource likely to be significantly affected by the alternatives was Sitka black-tailed deer. Some effects to fish habitat may also result from land management activities, but the magnitude of the effects could not be calculated. Risk to fish habitat increases with increased timber harvest, increased roading, and narrower riparian areas along streams. A panel evaluation of alternatives was conducted for the 1997 Final EIS. Alternative 11, which essentially represents the adopted Forest Plan, was judged to have relatively low risk relative to the other alternatives.

Because of their association with old-growth forest habitat, which is the main terrestrial habitat type affected by the alternatives, deer become the "indicator" for potential subsistence resource consequences concerning the abundance and distribution of the resources. The community-based subsistence analysis (*Communities* section) focuses largely on deer, which is by far the largest terrestrial component of subsistence food resources.

In the subsistence analysis in the 1991 Forest Plan Revision Supplemental Draft EIS (SDEIS), it was determined that at that time all of the Forest Plan alternatives, if implemented, could result in a significant restriction on the abundance and/or distribution of subsistence uses of Sitka black-tailed deer, brown bear, and marten sometime during the next 50 years. This conclusion was based on an analysis of the current status of huntable wildlife resources, and identified portions of the Tongass where such restrictions may already be occurring (i.e., were the result of existing conditions) (USDA Forest Service, 1991, pp. 3-762 and 3-763). The unpublished 1992 draft Final EIS reached the same conclusion for deer and brown bear. Such restrictions were most likely for communities with subsistence use areas in the northern portion of the Tongass (Chichagof and Baranof Islands, primarily). The RSDEIS came to the same conclusion in its analysis for deer.

In the 1997 Forest Plan Revision Final EIS, hunting demand and huntable populations of wildlife were only re-examined for Sitka black-tailed deer. Using a revised habitat capability model, the new deer analysis reached similar conclusions to that of the RSDEIS, based on specific areas where recent deer harvests are high relative to deer habitat capability. (This analysis was summarized at the end of the affected environment portion of the *Wildlife* section of the 1997 Forest Plan Revision Final EIS; see also Iverson, 1996). This analysis identified 7 areas (near Juneau, Hoonah,

Sitka, and Craig/Klawock) where current deer harvests exceeded 20 percent of the estimated habitat capability; and another 23 areas exceeding 10 percent of capability (4 on Admiralty, 5 on Chichagof, 4 on Baranof, 8 on Prince of Wales, and 2 near Ketchikan). Areas exceeding 20 percent are those where deer harvest may be restricted, either directly through restrictions in seasons and bag limits, or indirectly through reduced hunter efficiency and increased difficulty in obtaining deer relative to historical rates. Hunters in areas between 10 to 20 percent may experience reduced hunter efficiency and moderate difficulty in obtaining deer. This analysis may underestimate negative effects when deer populations are below carrying capacity. Adverse effects to deer hunters may be further amplified with either reductions in deer habitat capability or increases in deer demand/harvest or both.

The 1997 deer analysis was much in line with the earlier (1991, 1992, and 1996) analyses, which also used the 10 and 20 percent harvest cutoffs and the same land units. It indicated that deer habitat capabilities in several portions of the Tongass may not be adequate to sustain the current levels of deer harvests, and that implementation of any Forest Plan alternative could therefore be accompanied by a significant possibility of a significant restriction on the abundance and/or distribution of subsistence uses of deer. (Sport hunting restrictions would, however, occur first, followed by selective subsistence reductions, based on ANILCA section 804.) This possibility, at least in the short-term, is largely due to the continuation of reduced habitat capabilities resulting from past habitat alterations, which is why it applied to all alternatives.

Under the alternatives analyzed in this SEIS, the possibility of a significant restriction, resulting from a change in abundance or distribution, would be the same as or less than the possibility under Alternative 11 of the 1997 Forest Plan Revision Final EIS. In the short-term, the risk of a significant restriction would be about the same under any of the SEIS alternatives. This is because the effects of past harvest would override the effects of new harvest during the next 10 years. In the long-term, those alternatives that reduce areas available for future timber harvesting the most would result in the largest reduction in risk. Alternatives 1, 2, and 4 would result in the same possibility of a significant restriction relative to Alternative 11 of the 1997 Final EIS because they would not produce a change in old-growth harvest rates relative to the 1997 Forest Plan. Very slight reductions in harvest rates would occur relative to Alternative 11 of the 1997 Final EIS due to increases in the acreage of land in old-growth reserves and land adjustments that have occurred since 1997; however these reductions would be negligible (on the order of 2 percent). Alternatives 3, 5, and 7 would reduce the possibility of a significant restriction because of a 9, 18, or 33 percent reduction, respectively, in development LUD acreage. Alternatives 6 and 8 would result in a larger reduction in the possibility of a significant restriction due to a 72 and 71 percent reduction, respectively, in development LUD acreage.

Access

None of the alternatives would directly limit the use of public lands for the purposes of subsistence gathering activities. Historical access (by foot, boat, and floatplane) is available under all the alternatives for present and proposed foreseeable future activities. Although wilderness designation often results in prohibitions of motorized access, Congress reaffirmed and expanded upon the purposes of wilderness in ANILCA, as stated in the 1964 Wilderness Act, specifically for wilderness established in Alaska. Section 811 of ANILCA mandates that the Secretary “shall ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on public lands.” Other laws (including the Wilderness Act) notwithstanding, this section further directs that the Secretary “shall permit on the public lands appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes

by local residents, subject to reasonable regulation." In Section 1110(a) ANILCA also requires that the use of snowmachines, motorboats, airplanes, and nonmotorized surface transportation methods shall be permitted for traditional activities and travel to and from villages and homesites. Wilderness designations resulting from this SEIS would not, therefore, affect existing accessibility.

All communities having new road access to previously under-utilized subsistence areas have capitalized on the opportunity to expand their range provided by the road systems. As a result of new road construction, new use patterns are likely to develop around some communities. Such changes are not likely to lead to a significant possibility of a significant restriction of subsistence access to the resources.

Competition

Competition for subsistence resources is a result of factors, such as fish and game regulations; mobility; the natural distribution of game species across the Tongass; decreases in resource populations as a result of habitat reductions; decreases in resource populations as a result of over-harvest; and access provided to rural communities in the form of roads, ferries, and commercial air carriers. The majority of the population (Juneau and Ketchikan residents) of Southeast Alaska is non-rural. Competition for the more abundant wildlife and fisheries resources near rural communities results from the combination of these factors.

For analyzing competition, the following assumptions are made:

1. New road construction adjacent to communities with ferry access will result in increased competition from outside communities.
2. New road construction adjacent to existing road systems where interties between communities exist will result in increased competition from surrounding communities associated with the inter-connected roads.
3. Habitat reductions will result in increased competition if regulations allow sport use to remain constant, with the same number of users seeking fewer huntable resources.
4. The demand for resources will remain constant or increase slightly as the habitat capability remains the same or declines over time.

Given these assumptions, the 1997 Forest Plan Revision Final EIS concluded that implementation of Alternative 11 (the Selected Alternative) would result in a significant possibility of a significant restriction of subsistence use by increasing competition for some subsistence resources by non-rural, as well as rural residents. This was judged most likely to occur on Chichagof, Baranof, and/or Prince of Wales Islands, where competition for deer and some other land mammals is currently heavy, and habitat capability has been reduced as a result of timber harvest.

Under the alternatives analyzed in this SEIS, the possibility of a significant restriction, resulting from a change in competition, would be the same as or less than the possibility under Alternative 11 (the Selected Alternative) of the 1997 Forest Plan Revision Final EIS. Based on the mileage of new road construction, there would be no change in risk under Alternatives 1, 2, and 4; a slight reduction in risk under Alternatives 3, 5, and 7; and a larger reduction in risk under Alternatives 6 and 8 (see the *Transportation and Utilities* section).

Cumulative Effects

Cumulative effects are discussed in four categories.

1. **Effects Resulting from Timber Harvesting of Private Lands**. Native Corporation lands adjacent to the Tongass National Forest support extensive

timber harvest operations. Over the last two decades, primarily on North Chichagof, Kupreanof, Admiralty (localized), and Prince of Wales Islands, and mainland areas, old-growth forest wildlife habitat capability in these lands (especially that for deer) has declined, and this decline is expected to continue for at least the next two decades. The resulting lower habitat capabilities on these private lands are likely to increase hunting demands in adjacent National Forest areas, increasing competition and potentially leading to reduced hunter success, reduced or eliminated sport seasons, and in some places reduced or eliminated subsistence seasons.

2. **Effects from Past Activities**. Timber harvest has been more influential in changing the landscape than any other use of the resources of the Tongass. With timber harvest comes roading, log transfer facility development, crew camps ranging from a few years in duration to establishment of new towns, and reductions in old-growth forest habitat. Intensive timber harvesting since the 1950s has resulted in approximately 430,000 acres of old growth becoming second growth.

3. **Effects of Present Activities**. Implementation of the 1997 Forest Plan allows an annual maximum timber harvest of approximately 259 MMBF (based on the ASQ), with an annual conversion of up to 8,900 acres of old-growth habitat to second growth (although a much lower volume and acreage has been harvested in recent years). Up to 108 miles of classified road would be constructed annually to harvest this timber. One major mining operation, the Greens Creek Mine, came on line and was under full-scale production until about 7 years ago, with some localized effects. It has since reopened and is back in operation. Other large mines are in the exploratory or permitting phases of development.

4. **Effects of Reasonably Foreseeable Future Activities**. The conversion of old-growth forest habitat to second growth will occur at varying rates under all alternatives. The principal subsistence resource effect will be on Sitka black-tailed deer habitat, as previously discussed. If timber harvesting were to continue at maximum allowable rates over the next 10 years, a maximum of 89,000 acres of old-growth habitat would change to second-growth and l,080 miles of road would be built. The comparison of alternatives at the end of Chapter 2, as well as the *Timber* and *Transportation and Utilities* sections, displays the maximum values predicted under each alternative. With timber harvest activities will come new access, probably new camps, and potential increased use of subsistence resources by rural and non-rural residents.

Timber harvest of Native Corporation lands is anticipated to continue at a relatively low but constant level over the next decade. Land selections could result in some previously unharvested areas being logged. Actual mineral development is difficult to predict, but where it occurs, effects to subsistence resources would be highly localized.

ANILCA Determination

An ANILCA Section 810 evaluation and determination is not required for approval of a Forest Plan revision, a programmatic level decision that is not a determination whether to “withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition” of National Forest lands. This SEIS is part of the Forest Plan Revision process and, therefore, does not require an ANILCA Section 810 evaluation and determination. A Forest-wide evaluation and determination was, however, included for the 1997 Tongass Forest Plan Revision Final EIS to facilitate project level planning and decisionmaking in compliance with ANILCA Section 810. The analysis and findings conducted for this SEIS will complement the 1997 effort.

Consistent with Section 810 of ANILCA, the alternatives considered in the RSDEIS were evaluated for potential effects on subsistence uses and needs, as described above. Based on that evaluation, it was determined that, in combination with other past, present and reasonably foreseeable future actions, one or more of the RSDEIS alternatives (if implemented through project-level decisions and actions) may result in a significant restriction of subsistence uses of deer, and possibly other land mammals, due to potential effects on abundance and distribution, and on competition.

As a result of this finding, the Forest Service notified the appropriate State agencies, local communities, the Southeast Alaska Federal Subsistence Regional Advisory Council, and State Fish and Game Advisory Committees, and held hearings in affected communities throughout Southeast Alaska after publication and dissemination of the RSDEIS.

Using the information described earlier in this section and comments from the ANILCA 810 Subsistence Hearings, the alternatives considered in the 1997 Forest Plan Revision Final EIS were evaluated for potential effects on subsistence uses and needs, as described above. Based on this evaluation it was again determined that, in combination with other past, present, and reasonably foreseeable future actions, one or more of the 1997 Final EIS alternatives (if implemented through project-level decisions and actions) may result in a significant restriction of subsistence uses of deer, and possibly other land mammals, due to potential effects on abundance and distribution, and on competition. As identified above, the same conclusion is reached regarding the alternatives of this SEIS. The risk of a significant restriction would be the same or less than for the Selected Alternative from the 1997 Final EIS (current Forest Plan).

Section 810 (a)(3) of ANILCA requires that when a significant restriction may result, three determinations must be made.

1. **Necessary and Consistent with Sound Management of Public Lands**. The alternatives proposed in this SEIS have been examined to determine whether they are necessary and consistent with sound management of public lands. In this regard, the National Forest Management Act; the Alaska National Interest Lands Conservation Act; the Tongass Timber Reform Act; the Wilderness Act; the Alaska Regional Guide; the 1997 Forest Plan Revision Final EIS, as amended; the Alaska State Forest Resources and Practices Act; and the Alaska Coastal Zone Management Program have been considered.

   National Forest land management plans are required by the National Forest Management Act and must provide for the multiple-use and sustained yield of renewable forest resources in accordance with the Multiple-Use Sustained Yield Act of 1960. Multiple-use is defined as “the management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people” (36 CFR 219.3). The alternatives presented herein represent different ways of managing Tongass National Forest resources in combinations that are intended to meet the needs of the American people. Each provides for different amounts of new wilderness or LUD II recommendations and varying levels of resource uses and opportunities. Each alternative has some potential to affect subsistence uses, although the effects would be the same or less than under the current Forest Plan. The potential restrictions associated with each alternative are necessary, consistent with the sound management of public lands.

2. **Amount of Public Land Necessary to Accomplish the Proposed Action**. The amount of land necessary to implement each alternative is, considering sound multiple-use management of public lands, the minimum necessary to accomplish the purpose of that alternative. The entire forested portion of the Tongass (except the Yakutat area) is used by at least one rural community for subsistence purposes for, at a minimum, deer hunting. It is not possible to avoid all of these areas in implementing resource use activities, such as timber harvesting and road construction, under any Forest Plan alternative, and attempting to reduce effects in some areas can mean increasing the use of others. The current Forest-wide standards and guidelines and LUD prescriptions provide for special management or limit activities in many of the areas most important for subsistence uses, such as beaches and estuaries, areas adjacent to roads, and areas with high fish and wildlife habitat values. The alternatives considered in this SEIS would maintain the same levels of resource use and associated activities or would reduce them.

3. **Reasonable Steps to Minimize Adverse Impacts to Subsistence Uses and Resources**. The Forest-wide standards and guidelines and LUD prescriptions of the 1997 Forest Plan will continue to be implemented as part of any alternative action where they apply, except for the new LUDs described in Appendix D (Recommended Wilderness and Recommended LUD II). Subsistence use is addressed specifically in a Forest-wide standard and guideline, and subsistence resources are covered by the Forest-wide standards and guidelines for wildlife, fish, riparian areas, and biological diversity, among others. Fish and wildlife habitat productivity will be maintained at the highest level possible, consistent with the overall multiple-use goals of the 1997 Forest Plan.

A final determination was made in the Record of Decision for the 1997 Tongass Forest Plan Revision Final EIS, which was consistent with the analysis above. A summary of the evaluation, findings, and determination for the SEIS selected alternative will be contained in the SEIS Record of Decision.

Roadless Areas

Affected Environment

Introduction

This section addresses the roadless areas that meet the minimum criteria for potential inclusion in the National Wilderness System. Identifying this potential does not imply that areas should or should not be recommended for designation as wilderness, but is intended to portray the remaining undeveloped portions of the National Forest for which wilderness is a future option.

Once an area is roaded it is generally no longer available for wilderness consideration. Depending on when and how the activity was conducted, evidence of previous timber harvest, abandoned habitations, and historic mining may not necessarily result in an irreversible removal of land from future wilderness consideration.

The minimum criteria for considering a roadless area in the evaluation of wilderness potential was established by the Wilderness Act of 1964 and in subsequent regulation and policies. To qualify, an area must contain at least 5,000 acres of undeveloped land which does not contain improved roads maintained for travel by passenger-type vehicles. Areas less than 5,000 acres may also qualify if they are a self-contained ecosystem, such as an island, are contiguous to existing wilderness, or are ecologically isolated by topography and manageable in a natural condition (see the *Wilderness* section in this chapter).

Roadless Area Inventory

Prior to developing this SEIS, the Tongass roadless inventory was updated. This process began with the comprehensive updating of the inventory of existing roads (including all classified and unclassified roads), harvest units, and land ownership on the Tongass National Forest. Next, developed areas were identified by buffering existing roads and harvest units. All areas within 1,200 feet of an existing road and within 600 feet of an existing harvest unit were considered developed; however, in order to be more inclusive, isolated beach-logged and helicopter units were not identified as developed areas. Narrow stringers of land between developed areas were also included as developed. All National Forest System land outside of areas defined as developed was identified as roadless. These roadless areas were then stratified into areas greater than 5,000 acres and into areas less than 5,000 acres. Inventoried roadless areas were identified as all roadless areas greater than 5,000 acres, as well as all inventoried roadless areas identified in the 1989 inventory, which included some areas less than 5,000 acres. In addition, all other areas less than 5,000 acres were examined to determine if they were eligible for wilderness consideration. These included small roadless areas adjacent to existing wilderness. All inventoried roadless areas on the Tongass are shown on each of the alternative maps provided in the *Map* section. Larger scale maps of each inventoried roadless area are presented on the SEIS Web site at www.tongass-seis.net and are provided on the Draft SEIS CD-ROM.

Roadless Area Terms

Roadless Area: For purposes of this SEIS, this is a generic term that includes inventoried roadless areas and unroaded areas.

Inventoried Roadless Area: An undeveloped area typically exceeding 5,000 acres that meets the minimum criteria for wilderness consideration under the Wilderness Act.

Unroaded Area: An undeveloped area typically less than 5,000 acres but of a size and configuration sufficient to protect the inherent characteristics associated with its roadlless condition.

Detailed descriptions of each individual roadless area have been updated to include an overview and a description of the capability, availability, and need for each area to be designated as wilderness. These descriptions reflect current conditions and Forest Service Manual and Handbook direction. They also include an updated rating for each roadless area called the Wilderness Attribute Rating System (WARS), as well as a description of how each individual roadless area could contribute to the National Wilderness Preservation System. These individual roadless area descriptions are included as Appendix C to this SEIS.

This roadless inventory may be further refined prior to publication of the Final SEIS and ROD. This final step in updating the inventory may involve using the information developed about each roadless area to modify its boundary so that it better reflects the area with wilderness potential as defined by the Wilderness Act.

The roadless area inventory displays the extent of the roadless resource, and provides data for use by managers, legislators, and others to formulate land management proposals. Roadless areas may retain their roadless character by being managed in a way that emphasizes relatively large, undeveloped or natural areas, such as that usually required for old-growth habitat, scenic backdrops, or for primitive recreation. Roadless areas identified in the inventory that are outside of existing designated Wilderness may be considered for wilderness recommendation or may be managed for a wide range of other resource management activities.

In November 1990, five new wildernesses and one addition to an existing wilderness were designated on the Tongass as a result of the Tongass Timber Reform Act (TTRA) (see the *Wilderness* section of this chapter). TTRA also established 12 permanent LUD II areas totaling 727,762 acres (includes 3,477 acres of non-National Forest System land), a designation that will maintain, in a primarily roadless state, an area's wildland characteristics (Table 3.3-44). Because LUD II areas are still available for future consideration as wilderness and meet the minimum criteria for consideration, those parts that are unroaded are included within the roadless areas described in Appendix C and in the tables of this section.

Wilderness Attributes of Roadless Areas

In order to systematically rate the wilderness quality of roadless areas, the Forest Service developed a methodology referred to as the Wilderness Attribute Rating System during the Roadless Area Review and Evaluation (RARE) II process in 1977. This methodology was developed by a team of resource managers, researchers, university professors, and environmental representatives and was based on the wilderness definition in the Wilderness Act (Hendee et al., 1990). It considers four main attributes and several supplemental ones. The main attributes are natural integrity, apparent naturalness, opportunity for solitude, and opportunity for primitive recreation. Each of the four main attributes is rated on a scale of one to seven and a composite wilderness attribute score is determined by summing them; as a result, the score for a roadless area ranges from 4 to 28. In addition, there are two

Table 3.3-44
National Forest System Land, Non-National Forest System Land, and Productive Old Growth within each of the Legislated LUD II Areas Designated by the Tongass Timber Reform Act (in acres)

Name of LUD II Area	Total	National Forest System	Non-National Forest System	Productive Old Growth
Yakutat	139,045	139,035	10	72,312
Berners Bay	45,223	45,233	0	15,390
Anan	38,313	38,313	0	16,426
Kadashan	34,441	34,281	160	20,609
Lisianski/Upper Hoonah	149,088	147,132	1,956	44,178
Mt. Calder-Holbrook	60,863	60,863	0	38,682
Nutkwa	21,723	21,723	0	13,102
Outside Islands	75,720	75,342	378	45,999
Trap Bay	6,595	6,595	0	4,297
Pt. Adolphus/Mud Bay	117,877	116,695	182	38,249
Naha	31,365	31,350	15	17,875
Salmon Bay	11,200	11,200	0	4,811
Total	**730,463**	**727,762**	**2,701**	**331,930**

Source: USDA Forest Service, 1997a, Table 3-55.

supplemental area ratings: a supplementary wilderness attribute rating (ecological, geological, historical, etc.) and a scenic value rating. These ratings are not part of an area's overall composite wilderness attribute score, but instead are viewed as supplemental information to help make marginal decisions or to identify areas that might be placed in the Forest Service Special Interest Area System (Hendee et al., 1990).

Current Situation

The Tongass National Forest, the largest in the National Forest System, is more than 90 percent roadless, including wilderness. Only small areas where communities are developing, or where road construction and timber harvest have occurred, are "developed" to any noticeable degree. At various times in the past, "boom and bust" development (associated with fox farming, salmon canneries, mining, and military activity) resulted in the temporary development and occupation of small areas that have since been largely reclaimed by nature. Developed areas total 1.3 million acres, or about 8 percent of the Tongass (based on updated roadless mapping). Southeast Alaska residents, who number approximately 73,000, are virtually surrounded by land they consider wilderness. Routine travel and ordinary outdoor recreation activities may require a higher degree of skill, risk-taking, and self-reliance than are typically required of adventurous backcountry visitors on other National Forests. This wildness and the lifestyles associated with it are highly prized by residents and visitors alike.

A total of 106 inventoried roadless areas were identified and examined for potential wilderness recommendations early in the 1997 Tongass Forest Plan Revision Final EIS process that resulted in the 1997 Tongass National Forest Land and Resource Management Plan (referred to in this SEIS as the 1997 Tongass Forest Plan or the 1997 Forest Plan). The results of this analysis were recorded in Appendix C of the 1989 Analysis of the Management Situation (AMS). An update of this analysis was produced and included as Appendix C to the 1997 Forest Plan Revision Final EIS. This update addressed 110 roadless areas, the total number having increased primarily due to the splitting of some roadless areas by development.

The 110 roadless areas identified in the 1997 Final EIS covered approximately 9.4 million acres of National Forest System land. Based on the updated inventory in this Draft SEIS, we are now addressing 115 roadless areas that total approximately 9.7 million acres (the number and size of these areas may change slightly for the Final SEIS as the areas are refined). The size of each area, the amount of each area that is in productive old growth, and the amount in land that is considered suitable for timber harvest is shown in Table 3.3-45. The table also lists the WARS score for each of the roadless areas as a general indication of the wilderness attributes of the area. The location and relative size of the roadless areas is depicted on each of the alternative maps in the *Map* section. As indicated above, larger scale maps of each inventoried roadless area are presented on the SEIS Web site at www.tongass-seis.net and are provided on the Draft SEIS CD-ROM. Updated detailed descriptions of each roadless area are provided in Appendix C to this SEIS.

Several characteristics of roadless areas on the Tongass represent potentials unavailable elsewhere in the National Forest System. The Tongass has very large undeveloped land areas that could potentially be managed as wilderness or in an unroaded condition. Several portions of the Forest constitute contiguous roadless areas exceeding one million acres, and thus represent large, unfragmented wildlife habitats and outstanding opportunities for solitude.

Many of the Tongass roadless areas represent wildlife habitats, ecosystems, and visual character, such as coastal islands facing the open Pacific, extensive beaches on inland saltwater, old-growth temperate rain forests, ice fields, and glaciers that exist nowhere else in the National Forest System. All of these features are

Table 3.3-45
Tongass National Forest Roadless Areas

Roadless Area Number	Roadless Area Name	National Forest Acres	Productive Old-Growth Forest Acres	Estimated Suitable Forest Lands Acres[1]	Wilderness Attribute Rating (WARS)[2]
201	Fanshaw	48,443	29,478	8,251	26
202	Spires	543,319	68,398	6,952	26/27
203	Thomas	5,297	2,078	510	18
204	Madan	69,128	33,372	11,379	25
205	Aaron	79,147	17,099	4	27
206	Cone	127,874	10,698	0	28
207	Harding	179,350	57,639	3,165	20/22
208	Bradfield	204,128	23,623	1,999	20
209	Anan	38,162	16,018	0	22
210	Frosty	45,522	20,771	4,989	19/24
211	North Kupreanof	103,094	21,890	5,969	19/22
212	Missionary	17,382	8,874	2,586	16
213	Five Mile	19,272	8,247	2,232	23
214	South Kupreanof	215,391	83,591	20,123	24
215	Castle	52,432	20,165	3,098	25
216	Lindenberg	26,757	13,048	5,193	18
217	Green Rocks	11,216	5,150	388	19
218	Woewodski	10,632	5,783	2,346	21
219	North Mitkof	10,483	6,194	1,676	14
220	East Mitkof	10,332	3,824	658	15
222	Central Mitkof	6,689	4,439	1,147	14
223	Manzanita	10,792	6,338	2,090	18
224	Crystal	20,003	8,562	2,190	19
225	Kadin	2,022	1,997	0	20
227	North Wrangell	11,518	7,154	2,185	15/17
229	South Wrangell	14,959	6,489	1,935	20
231	Woronkofski	12,932	6,628	2,216	20
232	North Etolin	42,519	19,792	4,118	18
233	Mosman	56,757	26,656	5,576	22
234	South Etolin	28,678	10,889	3,204	24/25
235	West Zarembo	8,544	3,930	68	14
236	East Zarembo	21,469	10,162	3,906	14
237	South Zarembo	42,191	17,415	3,634	20
238	Kashevarof Islands	5,743	4,197	0	23
239	Keku	10,770	6,178	1,113	19
240	Security	35,952	23,975	1,618	22
241	North Kuiu	10,214	9,119	3,826	15
242	Camden	40,260	20,162	5,683	23/26
243	Rocky Pass	81,107	40,524	1,145	26
244	Bay of Pillars	28,994	20,623	14	25
245	East Kuiu	46,438	29,548	7,662	26
246	South Kuiu	63,063	37,339	0	27
247	East Wrangell	7,634	4,999	1,241	17
288	West Wrangell	3,634	1,129	463	15
289	Central Wrangell	15,654	7,062	1,407	16
290	Southeast Wrangell	20,353	8,537	1,113	17
301	Juneau-Skagway Icefield	1,201,474	60,528	1,722	25
302	Taku-Snettisham	685,704	99,498	4,027	24
303	Sullivan	66,143	12,883	955	26
304	Chilkat-West Lynn Canal	198,525	47,777	6,093	25
305	Juneau Urban	95,633	35,037	3,256	21
306	Mansfield Peninsula	52,553	26,251	0	20
307	Greens Creek	20,703	13,104	0	19/22
308	Windham-Port Houghton	161,867	107,248	20,546	25
309	Juneau Islands	2,656	2,050	0	14
310	Douglas Island	27,761	15,767	0	17
311	Chichagof	545,419	180,626	11,924	25/26
312	Trap Bay	13,923	7,132	278	19/23
313	Rhine	19,628	4,305	639	18

Table 3.3-45 (continued)
Tongass National Forest Roadless Areas

Roadless Area Number	Roadless Area Name	National Forest Acres	Productive Old-Growth Forest Acres	Estimated Suitable Forest Lands Acres [1]	Wilderness Attribute Rating (WARS) [2]
314	Point Craven	11,310	6,989	917	18
317	Point Augusta	15,629	9,246	1,170	19/20
318	Whitestone	5,745	2,841	439	19
319	Pavlof-East Point	5,348	4,139	296	16
321	Tenakee Ridge	22,014	6,528	1,355	18
323	Game Creek	51,994	19,280	2,299	18
325	Freshwater Bay	48,227	19,492	2,118	17
326	North Kruzof	25,373	12,520	489	22
327	Middle Kruzof	15,127	7,894	1,815	15
328	Hoonah Sound	97,329	34,805	2,226	25
329	South Kruzof	55,840	17,221	902	22
330	North Baranof	331,425	85,958	7,040	25
331	Sitka Urban	114,875	14,021	552	20
332	Sitka Sound	20,878	10,260	486	20
333	Redoubt	74,516	32,738	1,448	21
334	Port Alexander	124,021	30,875	0	25
338	Brabazon Addition	500,597	0	0	27
339	Yakutat Forelands	336,976	34,823	4,138	22
341	Upper Situk	18,411	6,885	1,236	19
342	Neka Mountain	53,014	23,059	2,013	21
343	Neka Bay	7,826	4,128	0	20
501	Dall Island	110,667	64,786	2,547	22
502	Suemez Island	24,940	15,362	3,058	20
503	Outer Islands	99,873	52,920	1,170	23/25
504	Sukkwan	49,614	19,801	1,828	23
505	Soda Bay	63,363	21,362	5,667	20
507	Eudora	201,729	88,774	11,928	24
508	Christoval	7,367	5,396	24	19
509	Kogish	72,553	30,126	8,222	20/23
510	Karta	56,816	20,611	6,398	19
511	Thorne River	76,454	39,627	3,015	21/22
512	Ratz	6,414	3,298	812	19
513	Sweetwater	10,198	4,605	1,485	14
514	Sarkar	63,656	31,394	2,686	23
515	Kosciusko	71,613	40,863	3,018	24
516	Calder	12,519	9,196	395	22
517	El Capitan	31,141	16,871	3,120	20
518	Salmon Bay	28,602	11,856	1,774	20
519	McKenzie	83,822	32,520	5,511	22/24
520	Kasaan	7,602	3,082	0	18
521	Duke	46,863	7,360	0	26
522	Gravina	38,845	18,822	4,429	21
523	South Revilla	55,321	23,048	1,793	19
524	Revilla	30,826	10,482	600	17
525	Behm Islands	4,943	3,262	0	14
526	North Revilla	230,679	105,391	11,327	20
528	Cleveland	191,363	98,718	15,546	25
529	North Cleveland	109,639	47,354	199	26
530	Hyder	122,408	13,880	1,449	25
531	Nutkwa	56,477	32,750	4,689	23
532	Fake Pass	876	765	0	22
533	Hydaburg	13,688	7,880	0	19
534	Twelvemile	36,171	12,376	1,376	16
535	Carroll	11,152	4,456	1,743	16
536	Kasaan Bay	4,757	595	1,498	13
577	Quartz	146,655	48,475	0	25
	Total Acres	**9,674,218**	**2,743,752**	**326,250**	

[1] The estimated suitable acreage is based on the 1997 Tongass Forest Plan and was adjusted by the MIRF and a Scheduling factor (see *Timber* section).

[2] The WARS rating has a potential range from a minimum of 4 to a maximum of 28. When two numbers are given, the roadless area was rated twice; once for the original area and once after specific portions of the area with development influences were separated out.

represented in the existing 5.8 million acres designated as wilderness. Many of these areas are remote, difficult to access for primitive recreation, and many contain other important resources, such as timber, minerals, and salmon-producing streams. Of the estimated 663,000 acres of suitable forest land on the Tongass National Forest, approximately 326,000 acres, or 49 percent, are within roadless areas.

Historic and Future Trends

Until World War II, the entire Tongass National Forest was virtually unroaded and undeveloped with the exception of a few small communities and isolated fox farms and canneries. Small scale "hand logging" along shorelines had occurred in many areas, but was not accompanied by roads and other development. Significant industrial timber harvest did not begin until the early 1950s with the opening of pulp mills and the advent of the long-term timber sale contracts. Since 1900, approximately 415,000 acres have had timber harvest activities, with 88 percent of the harvest occurring since 1952. Since the approval of the Tongass Land Management Plan in 1979, about 120,000 acres of National Forest System land have been altered by timber harvest. Currently, approximately 87 percent of nonwilderness National Forest System land is roadless.

Recreation and tourism use of Southeast Alaska's roadless undeveloped lands is light but is increasing. Modern technology has made available improved rainwear, camping equipment, high-quality ocean kayaks, portable marine radios, and other gear that respond to new trends, or lead to increased use. Continued tourism marketing may also lead to increased public use of wilderness and roadless area recreation opportunities. Demand for natural areas to provide clean water and air, reduce effects of global warming, and to counter deforestation in other countries is also increasing as these global issues increase in importance.

Environmental Consequences

Direct, Indirect, and Cumulative Effects

Alternative 1 does not propose any changes to the management of existing roadless areas; however, each of the other alternatives considered in this SEIS propose to change various combinations of roadless area acreages to Recommended Wilderness or Recommended LUD II areas. Table 3.3-46 displays how the roadless lands were allocated to Recommended Wilderness or Recommended LUD II areas in each alternative.

Table 3.3-47 displays how the roadless lands are allocated to LUDs by alternative. Subtotals in this table indicate groupings into categories of natural setting, moderate development, and intensive development. The groupings indicate the potential for development or for maintaining the natural setting and, therefore, a future wilderness option. Implementation will determine the location, timing, or intensity of actual project activities within any particular area.

In general, management prescriptions for LUDs that allow moderate to intensive development include timber harvest with associated road and log transfer facility construction. There are guidelines for the extent and visual impact of such activities. The LUDs that emphasize maintaining the natural setting and undeveloped character of the area generally do not allow timber harvesting or the development of major recreation facilities, although roads linking transportation systems, particularly major State corridors, may occur.

Not all areas subject to development allowed by the LUD would actually be developed. Development will occur mainly in areas with suitable forest lands. Some of the road construction will occur in areas already roaded. Some of the road construction will fragment existing roadless areas, either creating new roadless areas (if more than 5,000 acres remains) or simply resulting in small blocks of undeveloped land surrounded by roads and harvest areas.

Table 3.3-46
Tongass National Forest Roadless Areas Recommended for Wilderness or LUD II Designation by Alternative

Roadless Area Number	Name	Alternative							
		1	2	3	4	5	6	7	8
201	Fanshaw						48,443	48,443	48,443
202	Spires			500,047	482,662		543,319	543,319	543,319
203	Thomas						5,297	5,297	5,297
204	Madan						69,028[1]		69,028
205	Aaron						79,147[1]		79,147
206	Cone						127,874[1]		127,874
207	Harding		40				179,350[1]		179,350
208	Bradfield						204,128[1]		204,128
209	Anan		38,162			38,162	38,162[1]	38,162	38,162
210	Frosty						45,522[1]		45,522
211	North Kupreanof						33,879/ 69,214[1]	33,879	103,093
212	Missionary						17,382[1]		17,382
213	Five Mile						19,284[1]		19,284
214	South Kupreanof			77,117	433	108,613	212,352/ 3,039[1]	215,391	215,391
215	Castle			32,378	18,513	32,378	52,432	52,432	52,432
216	Lindenberg						8,137/ 18,620[1]	8,137	26,757
217	Green Rocks						11,216[1]		11,216
218	Woewodski						10,632	10,632	10,632
219	North Mitkof						10,483[1]		10,483
220	East Mitkof					591	10,332[1]	591	10,332
222	Central Mitkof						6,989[1]		6,989
223	Manzanita					6,834	10,792[1]	6,834	10,792
224	Crystal						20,003[1]		20,003
225	Kadin						2,022[1]		2,022
227	North Wrangell								11,518
229	South Wrangell						14,959[1]		14,959
231	Woronkofski						12,932[1]		12,932
232	North Etolin						42,520[1]		42,520
233	Mosman						56,629/ 128[1]	56,629	56,757
234	South Etolin						28,678	28,678	28,678
235	West Zarembo						8,544[1]		8,544
236	East Zarembo						21,469[1]		21,469
237	South Zarembo						42,191[1]		42,191
238	Kashevarof Islands						5,743[1]		5,743
239	Keku						10,770[1]		10,770
240	Security						35,952[1]		35,952
241	North Kuiu						10,214[1]		10,214
242	Camden			23,205		17,196	40,260[1]	17,196	40,260
243	Rocky Pass			74,186	69,823	73,962	260/ 80,847[1]	74,187	81,107
244	Bay of Pillars			23,282	20,927	20,852	28,984	28,984	28,994
245	East Kuiu		3,071	46,438		41,595	46,438	46,438	46,438
246	South Kuiu			63,063	63,063	63,063	63,063	63,063	63,063
247	East Wrangell						7,634[1]		7,634
288	West Wrangell								3,634
289	Central Wrangell						15,654[1]		15,654
290	Southeast Wrangell						20,353[1]		20,353
301	Juneau-Skagway Icefield		42,921			41,990	248,439/ 951,981[1]	248,439	1,201,474

Table 3.3-46 (continued)
Tongass National Forest Roadless Areas Recommended for Wilderness or LUD II Designation by Alternative

Roadless Area Number	Name	Alternative							
		1	2	3	4	5	6	7	8
302	Taku-Snettisham						423,951/ 261,753[1]	423,959	685,704
303	Sullivan					3,976	62,167/ 3,976[1]	66,143	66,143
304	Chilkat-West Lynn Canal						198,359/ 165[1]	198,359	198,525
305	Juneau Urban						20,347/ 75,286[1]	20,354	95,633
306	Mansfield Peninsula						52,553	52,553	52,553
307	Greens Creek						11,603	11,603	20,702
308	Windham-Port Houghton					123,423	167,867	161,867	167,867
309	Juneau Islands						2,656[1]		2,656
310	Douglas Island						27,761[1]		27,761
311	Chichagof		238,453			348,869	35,103/ 510,318[1]	351,651	545,421
312	Trap Bay		6,415			6,415	13,923	13,923	13,923
313	Rhine						2,916/ 16,712[1]	2,916	19,628
314	Point Craven						11,310[1]		11,310
317	Point Augusta						15,629[1]		15,629
318	Whitestone						5,745[1]		5,745
319	Pavlof-East Point						5,348[1]		5,348
321	Tenakee Ridge						22,014[1]		22,014
323	Game Creek						51,994[1]		51,994
325	Freshwater Bay						48,227[1]		48,227
326	North Kruzof						25,373[1]		25,373
327	Middle Kruzof						15,127[1]		15,127
328	Hoonah Sound		53,667	43,662		97,329	43,662	97,264	97,329
329	South Kruzof						55,841[1]		55,841
330	North Baranof					22,574	331,425[1]	22,574	331,425
331	Sitka Urban						114,875[1]		114,875
332	Sitka Sound						20,878[1]		20,878
333	Redoubt						74,517[1]		74,517
334	Port Alexander						100,616/ 23,405[1]	100,616	124,021
338	Brabazon Addition						500,597	500,597	500,597
339	Yakutat Forelands		137,098			219,824	12,881/ 186,995[1]	232,595	336,976
341	Upper Situk						2,543/ 15,868[1]	2,543	18,412
342	Neka Mountain					20,815	53,014[1]	20,815	53,014
343	Neka Bay						7,826[1]		7,826
501	Dall Island					103,859	110,667[1]	103,859	110,667
502	Suemez Island						24,940[1]		24,940
503	Outer Islands		74,094			95,935	25,779[1]	95,935	99,873
504	Sukkwan					16,126	49,614[1]	16,126	49,614
505	Soda Bay						63,363[1]		63,363
507	Eudora					24,387	150,191/ 51,538[1]	150,191	201,729
508	Christoval						7,367[1]		7,367
509	Kogish						72,553[1]		72,553
510	Karta						56,816[1]		56,816
511	Thorne River					61,321	76,454[1]	61,321	76,454
512	Ratz						6,414[1]		6,414
513	Sweetwater								10,198
514	Sarkar					24,765	63,656[1]	24,765	63,656
515	Kosciusko		43,265			58,232	71,613[1]	58,232	71,613
516	Calder		10,279			10,279	2,241[1]	10,278	12,519

Table 3.3-46 (continued)
Tongass National Forest Roadless Areas Recommended for Wilderness or LUD II Designation by Alternative

Roadless Area Number	Name	Alternative							
		1	2	3	4	5	6	7	8
517	El Capitan						31,141[1]		31,141
518	Salmon Bay		11,076			19,065	28,602[1]	19,065	28,602
519	McKenzie						83,822[1]		83,822
520	Kasaan						7,602[1]		7,602
521	Duke						46,863[1]		46,863
522	Gravina						38,845[1]		38,845
523	South Revilla						55,321[1]		55,321
524	Revilla						30,826[1]		30,826
525	Behm Islands						4,943[1]		4,943
526	North Revilla		31,318			31,318	230,679[1]	31,318	230,679
528	Cleveland			191,363	80,732	191,363	191,363[1]	191,363	191,363
529	North Cleveland						109,639[1]		109,639
530	Hyder						122,408[1]		122,408
531	Nutkwa		21,455			51,953	30,551/ 26,127[1]	51,953	56,477
532	Fake Pass						876[1]		876
533	Hydaburg						13,688[1]		13,688
534	Twelvemile						36,171[1]		36,171
535	Carroll						11,152[1]		11,152
536	Kasaan Bay						4,757[1]		4,757
577	Quartz								146,655
	Total Acres	**0**	**711,313**	**1,074,896**	**736,308**	**1,984,950**	**3,209,590/ 5,570,639[1]**	**4,621,726**	**9,674,218**

[1] Acreage recommended for LUD II has this footnote (only occurs in Alternative 6).

Table 3.3-47
Allocation of Total Roadless Area (9,674,218 acres) to LUDs by Alternative

Land Use Designation	Alternative							
	1	2	3	4	5	6	7	8
Natural Setting Group								
Recommended Wilderness	0	711,313	1,074,896	736,308	1,984,950	3,209,590	4,621,726	9,674,218
Recommended LUD II	0	0	0	0	0	5,570,639	0	0
Nonwild. Nat. Monument	155,847	155,847	155,847	155,847	155,847	155,754	155,754	0
RNA	25,616	25,616	25,616	25,616	23,995	0	14,701	0
Special Interest Area	167,295	167,295	155,025	155,025	161,286	0	145,459	0
Remote Recreation	2,130,555	2,130,555	2,070,913	2,071,138	1,999,699	1,057	1,090,975	0
Municipal Watershed	43,422	43,422	43,422	43,422	43,422	400	43,422	0
Old-Growth Habitat	987,320	987,320	906,404	961,685	772,135	5,497	622,131	0
Semi-Remote Recreation	2,796,768	2,796,768	2,153,259	2,171,840	2,442,061	267	1,456,854	0
Legislated LUD II	711,313	0	708,237	711,313	35,867	711,313	34,847	0
Wild, Scenic, and Rec. Rivers	103,741	103,741	89,659	89,683	71,333	0	50,276	0
Subtotal	**7,121,877**	**7,121,877**	**7,383,278**	**7,121,877**	**7,690,595**	**9,654,517**	**8,236,145**	**9,674,218**
Moderate Development Group								
Experimental Forest	12,813	12,813	12,813	12,813	12,813	0	6,270	0
Scenic Viewshed	369,385	369,385	352,644	369,385	331,412	9,656	208,852	0
Modified Landscape	387,585	387,585	333,065	387,585	319,702	4,463	208,890	0
Subtotal	769,783	769,783	698,522	769,783	663,927	14,119	424,012	0
Intensive Development								
Timber production	1,782,558	1,782,558	1,592,417	1,782,558	1,319,697	5,582	1,014,061	0
Subtotal	1,782,558	1,782,558	1,592,417	1,782,558	1,319,697	5,582	1,014,061	0
Total	**9,674,218**	**9,674,218**	**9,674,218**	**9,674,218**	**9,674,218**	**9,674,218**	**9,674,218**	**9,674,218**

The analysis at the Forest-wide level serves primarily as a general indication of the effects of the alternatives on the future potential to recommend roadless areas for designation as wilderness. In addition, not all of the effects of the alternatives occur at once. The maximum amount of road construction and timber harvest that would occur in the first decade in any alternative is estimated to be about 1,080 miles of road and about 89,000 acres of timber harvest (Alternatives 1, 2, and 4). Assuming that roadless acres become roaded at the rate of about 300 acres per mile of new road and that all new roads are built in roadless areas, a maximum of 324,000 acres of current roadless area are estimated to become roaded by the end of the first decade. This indicates that at least 97 percent of the currently roadless lands on the Forest would still be roadless at the time of the next Forest Plan revision.

Effects of Alternatives

The roadless lands allocated to natural setting LUDs will essentially remain roadless for the life of the current Forest Plan (5 to 10 years); therefore, there will be no effect on roadless values unless a vital transportation linkage or major utility system is proposed (see the LUD map in the *Map* section for potential locations). Should any major road or power transmission corridor study be undertaken, appropriate site-specific environmental analysis would occur.

Those roadless lands within moderate and intensive development LUDs would change over time. The amount of acreage that would change from a roadless to a "roaded" status by alternative is estimated in Table 3.3-48.

Alternatives 1, 2, and 4

Approximately 2.5 million acres of the existing roadless areas would remain allocated to moderate and intensive development LUDs under these alternatives. A maximum of approximately 324,000 of these acres would become roaded after Decade 1 and a maximum of approximately 847,000 acres would become roaded by the end of Decade 5. At the end of Decade 5, approximately 8.8 million acres of roadless areas, in addition to the 5.8 million acres of existing wilderness, would still remain on the Tongass.

Alternative 3

Approximately 2.3 million acres of the existing roadless areas would remain allocated to moderate and intensive development LUDs under Alternative 3. A maximum of approximately 290,000 of these acres would become roaded after Decade 1 and a maximum of approximately 757,000 acres would become roaded by the end of

Table 3.3-48
Current Roadless Acreage that Could Change to "Roaded" after 10 and 50 Years by Alternative[1]

Alternative	After 10 Years	After 50 Years
1	324,000	847,000
2	324,000	847,000
3	289,500	757,000
4	324,000	847,000
5	249,000	651,000
6	64,500	169,000
7	193,500	506,000
8	69,000	180,000

[1] Based on the assumption that roadless acres become roaded at the rate of 300 acres per mile, that all new roads are built in roadless areas, and that the maximum timber allowed under the ASQ is harvested.

Decade 5. At the end of Decade 5, approximately 8.9 million acres of roadless areas, in addition to the 5.8 million acres of existing wilderness, would still remain on the Tongass.

Alternative 5

Approximately 2.0 million acres of the existing roadless areas would remain allocated to moderate and intensive development LUDs under Alternative 5. A maximum of approximately 249,000 of these acres would become roaded after Decade 1 and a maximum of approximately 651,000 acres would become roaded by the end of Decade 5. At the end of Decade 5, approximately 9.0 million acres of roadless areas, in addition to the 5.8 million acres of existing wilderness, would still remain on the Tongass.

Alternative 7

Approximately 1.4 million acres of the existing roadless areas would remain allocated to moderate and intensive development LUDs under Alternative 7. A maximum of approximately 194,000 of these acres would become roaded after Decade 1 and a maximum of approximately 506,000 acres would become roaded by the end of Decade 5. At the end of the 5th decade, approximately 9.2 million acres of roadless areas, in addition to the 5.8 million acres of existing wilderness, would still remain on the Tongass.

Alternatives 6 and 8

Less than 20,000 acres under Alternative 6 and no acres under Alternative 8 of the existing roadless areas would remain allocated to moderate and intensive development LUDs. Less than 70,000 acres would become roaded after Decade 1 and less than 180,000 acres would become roaded by the end of Decade 5. At the end of Decade 5, approximately 9.5 million acres of roadless areas, in addition to the 5.8 million acres of existing wilderness, would still remain on the Tongass.