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United States
Department of
Agriculture

Forest Service

Tongass
National
Forest
R10-MB-335

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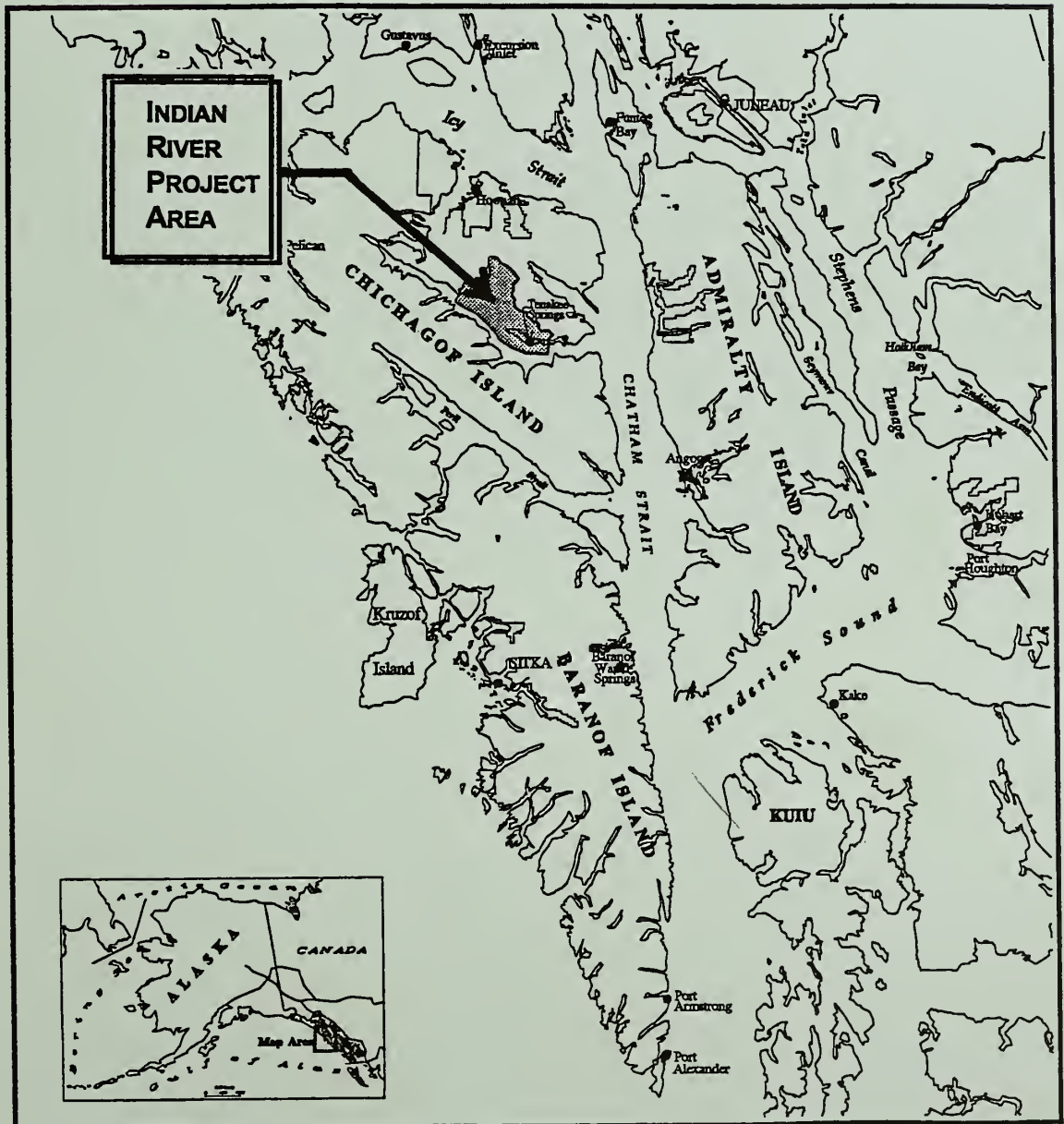


Indian River Timber Sales

Draft Environmental Impact Statement

Summary

1997 DEC 25 P 10:04





United States
Department
of Agriculture

Forest
Service

Alaska Region
Tongass National Forest
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Chatham Area
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File Code: 1950

Date: November 21, 1997

Dear Reviewer:

Enclosed for your review and comment is a copy of the Draft Environmental Impact Statement (EIS) for the Indian River Timber Sale(s).

If you received a complete set of documents, the following are in the package:

1. Summary
2. Volume I: Draft Environmental Impact Statement
3. Volume II: Appendices
4. Map Packet

If you elected to receive only the Summary and Map Packet, these are enclosed. Contact the Planning Team at the address below if you only received the Summary and would like to receive the additional volumes. Much of the research and analysis in the volumes has been summarized to make the document more concise and readable. Additional information is filed in the project planning record, and is available at the address below.

There will be a 45 day period during which you may review and comment on the Draft EIS. Comments should be written and must be received by January 5, 1998. These comments should be sent to:

Forest Supervisor
Tongass National Forest, Chatham Area
ATTN: Indian River EIS
204 Siginaka Way
Sitka, AK 99835

Fax comments may be sent to (907) 747-4331, ATTN: Indian River. Or you may e-mail your comments to our current address at:

/s=indianriver/ou1=r10f03a@mhs-fswa.attmail.com

Comments received in response to this letter, including names and addresses of those who comment, will be considered part of the public record on this proposed action and will be available for public inspection. Comments submitted anonymously will be accepted and considered; however, if you submit anonymous comments, you will not have standing to appeal the final decision. You may request that we withhold your comments from the public record by showing how the Freedom of Information Act (FOIA) permits such confidentiality. If you request confidentiality, you should be aware that, under the FOIA, confidentiality may be granted in only very limited circumstances, such as to protect trade secrets. I will inform you of our decision regarding requests for confidentiality. If requests are denied, I will return the comments and notify you that the comments may be resubmitted with or without name and address within ten (10) working days.

The Draft EIS concludes that there is a significant possibility of a significant restriction on subsistence use of deer for residents of Tenakee Springs. Therefore, in compliance with Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), a public hearing will be held during the public comment period. The hearing will be held in Tenakee Springs during the week of December 7, 1997. The date, time, and specific location of the hearing will be announced in the *Juneau Empire*, *Daily Sitka Sentinel*, and in the Federal Register.



I want to encourage you to take the time to review and comment on the Draft EIS, as well as participate in the subsistence hearings. Your input will be used in preparation of the Final EIS and the Record of Decision. If you have any questions, please contact Linn Shipley or any member of the Indian River Planning Team at (907) 747-6671. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,



GARY A. MORRISON
Forest Supervisor

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Summary

Project Overview

In compliance with Federal regulations, the Forest Service has prepared this Draft Environmental Impact Statement (EIS) for proposed timber harvest and related activities in the Indian River Project Area (See Figure S-1 for Project Area location).

This EIS follows the format established in the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and discloses the physical, biological, economic, and social consequences of five harvest alternatives, plus a no-action alternative.

Purpose and Need

The Indian River Timber Sale(s) Project is proposed at this time to respond to the goals and objectives identified for the Project Area by the Tongass Land and Resource Management Plan (TLMP, also referred to as the Forest Plan), and to move the Project Area toward the desired condition described in TLMP.

The Forest Plan identified the following Forest-wide goals and objectives (TLMP, pp. 2-3 to 2-4):

- 1) improve timber growth and productivity on suitable timber lands made available for timber harvest, and manage these lands for a long-term sustained yield of timber;
- 2) contribute to a timber supply from the Tongass that seeks to meet annual and TLMP planning cycle market demand; and
- 3) provide opportunities for local employment in the wood products industry, which in turn contribute to the local and regional economies of Southeast Alaska.

The Forest Plan also identified a desired condition for lands on which timber harvest is allowed, which includes managing suitable timber lands for the production of sawtimber and other wood products and allowing a variety of successional stages that provide a range of wildlife habitat conditions (TLMP, pp. 3-135 to 3-136, and 3-144).

As stated above, the Indian River Timber Sale(s) Project responds to the TLMP goals and objectives, as well as the desired condition for the Project Area.

Timber Growth and Productivity

Losses to the timber resource caused by age decay and disease are considerable in old-growth forests. It is not uncommon for over 30 percent of the timber volume in old-growth stands to be defective and thus unusable for wood products. Tree vigor tends to decrease with maturity, causing an increase in susceptibility to disease and decay fungi. Disease and decay processes are a natural part of forest ecosystems, and play a key role in providing wildlife habitat in old-growth forests. Harvesting aging stands, including those in declining health, on lands that allow timber harvest and replacing them with faster growing, healthy stands will reduce the volume loss associated with decay and disease and increase the growth and yield of the managed forest land.

The Forest Plan allocated approximately 72.2 percent of the land within the Indian River Timber Sale(s) Project Area to the Timber Production Land Use Designation (LUD). The

Summary

desired condition for these lands, as identified by the Forest Plan, states that they are to be managed for the production of sawtimber and other wood products on an even-flow, long-term sustained yield basis (TLMP, p. 3-144). An additional 0.1 percent of the land within the Indian River Timber Sale(s) Project Area is allocated to the Modified Landscape LUD. The desired condition for these lands states that they will produce a yield of timber which contributes to the Forest-wide sustained yield (TLMP, p. 3-135).

The remaining 27.7 percent of the Project Area is allocated to the Old-growth Habitat LUD. The desired condition for these lands states that all forested areas in this LUD will have attained old-growth forest characteristics, providing a diversity of old-growth habitat types and associated species and subspecies and ecological processes. Timber volume from this LUD (such as salvage) does not contribute to the Forest-wide allowable sale quantity.

Currently, western hemlock makes up about 83 percent of the old-growth forests in the Project Area. Western hemlock is susceptible to dwarf mistletoe, a disease that does not infect Alaska yellowcedar and rarely infects Sitka spruce. Western hemlock also appears to have more insect enemies than Sitka spruce. In addition, western hemlock has the lowest economic value of the three major commercial tree species in the Project Area. Harvesting existing stands dominated by western hemlock can encourage the growth of Sitka spruce and yellowcedar, creating a more diverse species mix and minimizing losses due to insects and diseases that are species specific. Using clearcut harvest methods and cable yarding systems will more likely provide favorable conditions for spruce and cedar regeneration rather than harvest methods using helicopters for yarding.

Market Demand

Section 101 of the Tongass Timber Reform Act (TTRA) directs the Forest Service to "seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle," to the extent consistent with the multiple use and sustained yield of all renewable forest resources. Market demand for Tongass timber is derived from factors including Southeast Alaska's timber industry mill capacity; local, national, and international timber markets; and projected local, national, and world-wide timber supplies.

The Alaska Region uses the projections of the Pacific Northwest Research (PNW) Station to help determine demand for Tongass timber. The latest PNW Station market demand estimates for Tongass timber through the year 2010 are based on three projections, or scenarios, of demand (low, medium, and high). In the low demand scenario, high stumpage, harvest, and manufacturing costs limit Alaska's share of markets. Under the high demand scenario, increased harvest and manufacturing efficiency, with resulting lower costs, make Alaskan mills more competitive. Projected annual sawlog demand for the next decade is 113 million board feet (mmbf) for the low scenario, 133 mmbf for the medium, and 156 mmbf for the high scenario (Brooks and Haynes, 1997).

The Forest Service intent is to provide the opportunity for the timber industry as a whole to acquire a supply of purchased, but unharvested timber equal to about three years of timber consumption, considering the average rate of harvest for the past few years and any indicators of change in that rate from planning cycle projections or other sources. This supply is a means of providing for stability in relation to fluctuating market demand. It is estimated that a three-year supply of timber, based on medium demand projections, is 399 mmbf.

As of June 30, 1997, there is 504 mmbf of unharvested timber volume under contract to the timber industry (Automated Timber Sales Accounting System Report 900, June 30, 1997). Of this volume, however, 300 mmbf is allocated to the Ketchikan Pulp Company under the

terms of the long-term contract settlement agreement, with 204 mmbf under independent industry contract. Thus, in order to meet the intent of having a three-year supply, approximately 195 mmbf of timber needs to be cleared through the NEPA process and offered to the industry.

It takes approximately three years for a timber sale project requiring an EIS to be cleared through the NEPA process (based on the average number of months between the Notice of Intent date and the Record of Decision date for 15 EIS timber sale projects on the Tongass National Forest). At this time, there is approximately 624 mmbf proposed under other ongoing NEPA analyses on the Tongass for the 1998-2002 time period (Regional Office summary of on-going timber sales, September 1997). Timber volume from the Indian River Timber Sale(s) Project will contribute toward the intent of meeting the three-year supply of timber under contract.

Timber volume from the Indian River Timber Sale(s) Project will be provided as a component of the ten-year timber program identified by the Forest Plan, which attempts to provide timber to industry in an even flow over the planning cycle. The Forest Plan states that the Chatham Area is expected to contribute up to a maximum of 51 mmbf per year for the next ten years (TLMP 1997, Appendix L-8). This schedule is based, in part, on the Tongass FORPLAN model, which is a linear programming software program used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.

Appendix A of the EIS provides a detailed rationale for why the Indian River Timber Sale(s) Project Area was selected for analysis at this time. In summary, Appendix A states that the Indian River Timber Sale(s) Project Area was selected at this time because:

- the TLMP allocated over 72 percent of the area as a Timber Production Land Use Designation (LUD), with sufficient timber volume available to help meet market demand;
- timber management activities will contribute to meeting the goals, objectives, and desired condition for this LUD;
- most of the other Timber Production LUDs on the Forest have or are planning to have timber management activities scheduled in them;
- timber harvest infrastructure (roads, log transfer site, rock quarries) are in place or in need of maintenance to reduce potential resource damage;
- to keep the area on the decade harvest rotation schedule (the area was last entered over 10 years ago); and
- to provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

The Indian River Timber Sale(s) Project is a component of the Chatham Area's timber management plan to contribute toward the volume identified by the Forest Plan sale schedule. The project will help meet TTRA and the Forest Plan's goals and objectives. At this time, the Chatham Area has approximately 174 mmbf in additional volume undergoing NEPA analysis which could also contribute toward the sale schedule volume (Regional Office summary of on-going timber sales, September 1997). In addition, 316 mmbf in projected volume is anticipated from future Chatham Area timber sale project plans over the next ten years (see Appendix A of the EIS).

Summary

Local Employment Opportunities

Timber is one of several valuable resources on the Tongass and many people depend on it for their livelihood. Timber from the Tongass is harvested for sawn wood products such as lumber and cants and wood chip exports, and is the basis for a major industry in Southeast Alaska that provided about 1,749 direct jobs in Fiscal Year 1996 (Alaska Department of Labor, May 1997).

The Tongass timber program is part of a long-term cooperative effort among the Federal government, the State of Alaska, and local governments to provide greater economic diversity and stability in Southeast Alaska and more year-round employment. The Indian River Timber Sale(s) Project would contribute toward this effort, providing the opportunity for approximately 49 average annual jobs and \$2.1 million in associated average annual income. This equates to 8.24 jobs and \$350,000 in associated income per million board feet harvested (Forest Service IMPLAN model - base year 1992).

Decision to be Made and Responsible Official

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act state that an EIS "...should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker. . . ." This EIS, in accordance with CEQ regulations, is not a decision document in itself, but is written to provide sufficient information for the decision-maker.

The Chatham Area Forest Supervisor is the responsible official for this Project. He must decide whether to make timber available from the Indian River Project Area. Furthermore, if he selects an alternative which proposes timber harvest, he must decide:

- the volume of timber to make available in this area in one or more timber sales;
- the location of timber harvest units, road systems, and log transfer facilities (LTFs);
- mitigation measures and enhancement opportunities for sound resource management;
- whether there may be a significant restriction on subsistence uses.

The decision will be documented in the Record of Decision (ROD) expected in May 1998.

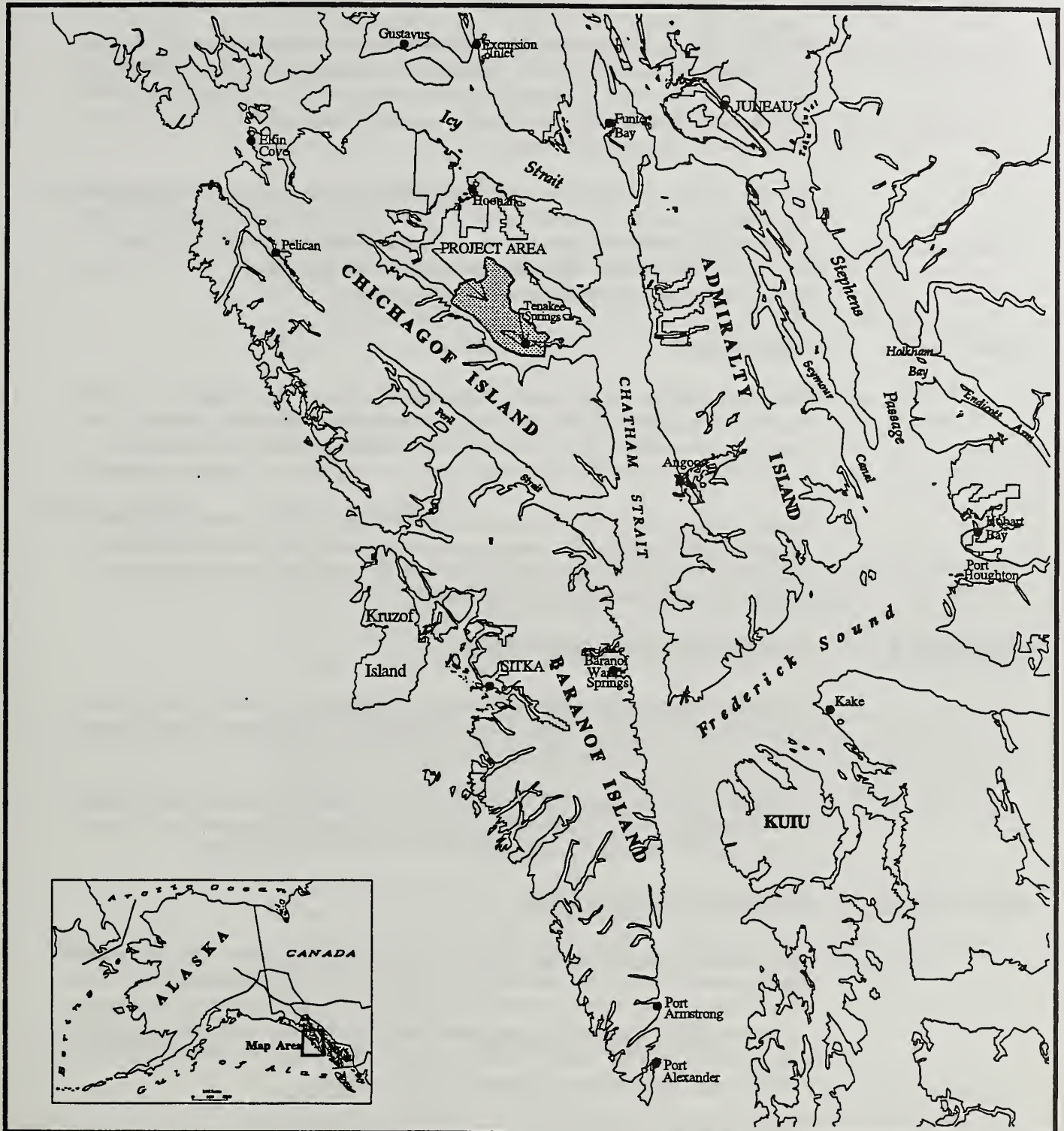
Project Location


The Indian River Project Area is located in the Tongass National Forest, and is situated on the northern shore of Tenakee Inlet, on Chichagof Island (Figure 1-1). The Project Area includes the major watersheds of 10-Mile Creek, Indian River, and portions of the Freshwater Creek and Game Creek drainages. The City of Tenakee Springs lies within the Project Area.

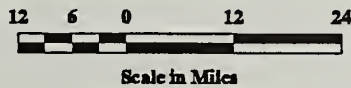
Proposed Action

The proposed action would harvest up to approximately 24 million board feet (mmbf) of timber from 1,885 acres within the Indian River Project Area on northeast Chichagof Island. This timber would be made available through two or more independent sales. Independent timber sale scheduling and volume of timber put up for bid will depend on current demand and economic conditions. As many as eight miles of new road would be built to facilitate timber removal. One previously existing log transfer facility (LTF) at Sunny Cove and one new site near 10-Mile Creek would be used to implement timber harvest.

Figure S-1 Vicinity Map



 Project Area



Summary

Issues To Be Addressed

The NEPA requires Federal agencies to determine the scope of the issues to be addressed and to identify the significant issues related to the proposed action. For the Indian River Project, these issues were identified through the scoping process described in the previous section. Issues were raised by individuals; organizations; other Federal, State, and local agencies; and affected Indian tribes.

Issues raised during scoping were analyzed and similar issues grouped when appropriate. The following issues were determined to be significant and within the scope of the project. In formulating alternatives, each of the issues was considered and addressed in some manner in all alternatives. Other issues were considered but eliminated from detailed study because resolution falls outside the scope of this project.

Issue Area 1

Subsistence

The focus of this issue is the impact of the proposed action on the availability of wildlife, marine life, and plants for customary and traditional use by rural Alaska residents. The Alaska National Interest Lands Conservation Act (ANILCA) specifically requires the Forest Service to determine if proposed activities may significantly restrict subsistence use.

The units of measure that will be analyzed for effects regarding this issue include the abundance and distribution of subsistence resources (such as habitat capability of deer), competition from other resource users by community, and the ability and methods of subsistence resource users to access the Project Area.

Issue Area 2

Fish Habitat and Water Quality

Fish and water resources in Southeast Alaska are important for subsistence, recreation, ecological, and economic reasons. The focus of this issue is the impact of timber harvest and associated road construction on water quality and fish habitat.

The units of measure that will be analyzed for effects regarding this issue include changes in sedimentation levels, chemical water quality, stream water temperatures, and stream flows, total road miles in stream buffers and number of stream crossings.

Issue Area 3

Biodiversity and Wildlife

The Project Area supports a wide variety of wildlife and plant species. Sitka black-tailed deer populations are of particular concern. Logging may reduce important winter habitat for deer and may contribute to reduced deer populations in some areas over the long term. Changes in other habitats and populations of other wildlife species may also occur. The focus of this issue is the impact of timber management activities on biodiversity levels, wildlife populations and overall management of ecosystems.

The units of measure that will be analyzed for effects regarding this issue include acres of wildlife habitat and habitat capability (for deer), acres of old-growth, number and size of old-growth patches, and acres of wetland.

Issue Area 4 Log Transfer Facilities (LTFs) and Camp Location

There is public concern about the location of LTFs and logging camps, and the potential environmental effects associated with their construction and operation. The focus of this issue is the impact of constructing and operating LTFs at Sunny Cove and 10-Mile Creek and logging camp locations.

The units of measure that will be analyzed for effects regarding this issue include the number and location of LTFs and logging camps.

Issue Area 5 Economic Values

Some communities in Southeast Alaska depend on timber and other natural resources from the Tongass National Forest to support their economy and lifestyles. This issue focuses on the capability of the Project Area to provide a long-term sustained flow of timber and other resources, and on whether this associated level of outputs is sufficient to meet the needs of dependent local communities.

The units of measure that will be analyzed for effects regarding this issue include the annual number of direct and indirect job opportunities created and estimated annual average wages.

Issue Area 6 Social Values

The focus of this issue is the impact of timber management activities on the social values of local communities, especially Tenakee Springs. Residents of Tenakee Springs are especially concerned about potential disruptions to their way of life that could result from such activities. Several components that make up "way of life" have been grouped under the general heading of social values. Quality of life is subjective and not easily measured.

Some of the social value concerns that residents feel could disrupt their way of life include: interference with use of the East Tenakee Trail; noise and pollution from timber management activities and logging camps; changes in visual resource quality, recreational opportunities, and subsistence opportunities; reduced eco-tourist and outfitter/guide income; water quality and fisheries resource impacts on commercial fishing income; and potential impacts on heritage, karst, and cave resources.

The units of measure that will be analyzed for effects regarding this issue include acres by Recreation Opportunity Spectrum classification and Recreation Place, commercial recreation/tourism use and income, commercial fisheries income, subsistence measures (see Issue Area 1 above), degree of risk to heritage resources, and mapped karst vulnerability characteristics.

Issue Area 7 Alternatives to Traditional Clearcutting

During public scoping, it was suggested that a minimal amount of clearcutting be planned for the Indian River Project. Concern centered on clearcutting effects on old-growth fragmentation, fish and wildlife resources, and biodiversity. The focus of this issue is the impact of different silvicultural harvest systems on various forest resources.

The units of measure that will be analyzed for effects regarding this issue are harvest method by acres and harvest method by volume. (Note: habitat capability model results for deer were adjusted to reflect reduced impacts when using harvest methods other than traditional clearcutting.)

Alternative Development

The action alternatives in this EIS were developed as site-specific proposals which could clearly display environmental consequences. Collectively, they explore ways to satisfy public concerns and resolve the issues discussed in Chapter 1 of the EIS, while responding to the purpose and need for the project. Each action alternative responds differently to the issues. This range of alternatives will give the Forest Supervisor a basis for making an informed decision.

Standards and guidelines in the 1997 TLMP, Alaska Regional Guide, and applicable Forest Service manuals and handbooks were followed in identifying a tentatively suitable land base, from which alternatives were developed. The tentatively suitable land base within the Project Area contains approximately 140 million board feet (mmbf) of timber.

In addition to complying with the above standards and guidelines, specific areas within the Project Area were avoided to provide further resource protection. These include:

- No harvest in Old-growth Land Use Designations (LUDs). This would also accommodate the concerns of Tenakee Springs residents regarding timber harvest effects on recreation and scenic quality in Tenakee Inlet.
- No harvest in the small Old-growth LUD located west of proposed Road #75007. This LUD is composed of a cedar plant community that is an underrepresented ecosystem in the Project Area.
- Avoid harvest in the Riparian Management Areas (RMAs). This would maintain riparian functions that affect water quality and wildlife habitat. (See the discussion of RMAs in the Soils, Water, and Fish sections of Chapters 3 and 4 of the EIS.)
- No harvest along Road #7502 in the area where VCUs 2221 and 2160 meet. This would maintain a wildlife corridor.

The first step in formulating alternatives was to develop a logging plan that identified a "pool" of timber harvest units and associated road systems from the tentatively suitable land base. The pool was examined in the field and reviewed by the Indian River Project Interdisciplinary Team (ID Team) before it was finalized. Then, harvest units were selected from the pool and assigned to each of the alternatives.

The proposed harvest units were analyzed at two levels: the Northeast Chichagof landscape level and the stand level. The landscape level considered effects of management practices over large areas (such as VCUs, watersheds, or viewsheds). At this level, timber harvest was concentrated in certain areas, with large tracts of old-growth being left undisturbed in other areas. (See the landscape ecology section in Chapter 3 of the EIS for further discussion of landscape analysis.)

The stand level dealt with individual harvest units. The following concepts were considered during the selection and design of individual harvest units and roads, while assigning them to specific alternatives:

- Abrupt edges were reduced by unit placement and by feathering the edges of the units.
- In larger harvest units, the edge effect was minimized by using fringe and stream buffers for corridors between old-growth blocks.
- Stand diversity was provided by leaving snags in harvest units (where safety regulations allow), or by retaining small patches of uncut timber in harvest units where feasible and practical.

Alternatives Considered In Detail

Six alternatives (five action alternatives and a no-action proposal) were considered in detail for this project. Each alternative was developed to respond differently to the issues, and to provide a range of choices for the decision maker. Maps are included (distributed with the Draft EIS) which display the proposed roads and harvest units for each of the alternatives. Table S-1 summarizes the volume and acres of timber harvest, logging systems, harvest methods, and roads proposed for development and use. Table S-2 summarizes the cumulative effects of the alternatives.

Alternative A (No Action)

Alternative A represents the existing conditions in the Project Area, and serves as the baseline against which the effects of all other alternatives are measured. There will be no new resource outputs associated with this alternative. No road construction or timber harvest would occur. Additional receipts to the State of Alaska would be foregone, existing timber-related jobs would not be sustained, and no new opportunities for timber-related jobs would be created. Routine maintenance (such as culvert cleaning), tree thinning, and removal of unsafe bridges may continue. (See Alternative A map and Table S-2.)

Alternative A responds to Issue Area 3 (Biodiversity and Wildlife) by implementing timber stand improvement plans (i.e., thinning of previously harvested units) as funding allows; benefits of thinning include improved wildlife habitat. The no-action alternative also responds to Issue Areas 4 (Log Transfer Facilities and Camp Location) and 6 (Social Values); deferring timber harvest in the Project Area would result in no harvest-related noise, disruption to use of East Tenakee Trail, user conflicts (loggers vs. recreationists/subsistence users), or changes in scenic resource quality. The alternative also responds to Issue Area 5 (Economic Values) by maintaining community dependence on other natural resources than timber (e.g., recreation, subsistence use) in support of their economy and lifestyles.

Alternative B (Proposed Action)

Alternative B is the Proposed Action as presented during public scoping. This alternative sustains levels of biodiversity and wildlife habitat by emphasizing uneven-aged management, and by maintaining wildlife travel corridors and lower elevation old-growth forest stands throughout the Project Area. Although many acres and units are entered, uneven-aged management maintains habitat characteristics; changes in scenic resource quality are also reduced. (See Alternative B map and Tables S-1 and S-2.)

Alternative B particularly addresses Issue Area 7 (Alternatives to Traditional Clearcutting) by harvesting the least amount of acres using clearcut harvest methods. It also responds to concerns in Issue Area 6 (Social Values) regarding noise, scenic quality, and disruption of saltwater fishing in the areas of the log transfer facilities (LTFs); since use of two LTFs is proposed, smaller harvest volumes would be moved through each, thus reducing impacts and recovery times at each site.

The alternative proposes to harvest 23.8 mmbf of timber (sawlog and utility) on 1,885 acres. This figure differs from that published in the Notice of Intent (34.3 mmbf) due to more accurate volume per acre estimates and field verified refinements to unit boundaries. There would be approximately 7.8 miles of new road construction and 21.6 miles of reconstruction.

The former LTF at Sunny Cove (VCU 2200) would be reconstructed and a new LTF near the mouth of 10-Mile Creek (VCU 2210) would be constructed. Both LTFs would be drive down ramps. A floating log camp would likely be located at Corner Bay (across

Summary

Tenakee Inlet). Log rafts from the 10-Mile Creek LTF would likely be stored at Seal Bay (also across Tenakee Inlet) due to lack of protection from wind and waves at the 10-Mile Creek site.

High cost mitigation measures (retaining walls, anchored piers, etc.) are incorporated into the design of the 10-Mile Creek road accessing saltwater. These design measures would reduce the risk of slope failure and potential impacts to other resources.

Road Management Objectives (RMOs) for this alternative include keeping mainline roads open at Maintenance Level 2 (passable by high clearance vehicles), and closing temporary roads after use. Drainage structures would be removed. Roads 75004, 75012, 75003, 75007, 75021, and 7502 would be closed. (See Appendix D of the EIS for detailed descriptions of maintenance levels.)

Alternative C

Alternative C reduces impacts on the community of Tenakee Springs by concentrating timber management activities in the Freshwater Creek, 10-Mile Creek, and the upper portion of Indian River drainages. Harvest systems would include cable, helicopter, and shovel yarding systems. Some units are prescribed for uneven-aged management. (See Alternative C map and Tables S-1 and S-2.)

Alternative C presents an overall balanced treatment of the issues, with a mix of resource outputs. Economic and social values concerns regarding disruption of recreation/tourism in the lower Indian River drainage (Issue Areas 5 and 6) are addressed in the long-term by avoiding harvest activities in this area.

The alternative proposes to harvest 28.7 mmbf of timber (sawlog and utility) on 1,856 acres. There would be approximately 9.5 miles of new road construction and 21.7 miles of reconstruction.

The former LTF at Sunny Cove would be reconstructed as a drive-down ramp. A floating log camp would likely be located at Corner Bay (across Tenakee Inlet).

RMOs for this alternative include keeping mainline roads open at Maintenance Level 2, for administrative use only. Temporary roads would be closed. Drainage structures would be removed on roads 75004, 75012, 75007, 750071, 7508, 7501, 75021, 75028, and 7502. The LTF at Sunny Cove could be removed and both gates on Road 7500 would be closed.

Alternative D

Alternative D reduces potential timber harvest impacts on the community of Tenakee Springs to a greater extent than Alternative C, by deferring most harvest activities in the Indian River watershed (VCU 2200). This alternative concentrates harvest in Freshwater and 10-Mile Creek drainages, with only one unit in the Upper Indian River drainage. The resulting emphasis is on clearcut harvest to improve economic efficiency. Harvest systems would include cable, helicopter, and shovel yarding systems. Uneven-aged management would be utilized where necessary to maintain resource values. (See Alternative D map and Tables S-1 and S-2.)

Alternative D particularly addresses Issue Area 5 (Economic Values) by only harvesting one unit in the Indian River drainage, and using the 10-Mile Creek LTF site. This would avoid disrupting the recreation/tourism income generated in the Indian River drainage and Sunny Cove. It also responds to concerns in Issue Area 6 (Social Values) by only minimally disrupting use of the East Tenakee Trail for a few days; by generating almost no noise in Sunny Cove or the Indian River drainage; and by decreasing the wildlands experience of the area the least.

The alternative proposes to harvest 24.0 mmbf of timber (sawlog and utility) on 1,586 acres. There would be approximately 9.2 miles of new road construction and 10.7 miles of reconstruction.

Alternative D utilizes a drivedown ramp LTF that would be built at the proposed 10-Mile Creek site. A floating log camp and log raft storage area would likely be located at Seal Bay.

High cost mitigation measures (retaining walls, anchored piers, etc.) have been incorporated into the design of the 10-Mile Creek road accessing saltwater. These design measures would reduce the risk of slope failure and potential impacts to other resources.

RMOs for this alternative include closing all roads to motorized vehicles after harvest and maintaining all system roads at Maintenance Level 1. Both gates on Road 7500 would be closed. All bridges would be removed in VCUs 2041, 2160, and 2221. In VCU 2200 unsafe log stringer bridges would either be removed or warning signs would be posted.

Alternative E

Alternative E emphasizes maintenance of deer habitat. This would be accomplished by leaving large blocks of old-growth forest on the south-facing slopes in Indian River and the lower elevations at 10-Mile Creek above the estuary. Harvesting would be done in all three drainages. Elements of Landscape Ecology (for example, maintaining large blocks of unfragmented old-growth, and considering patch size) are emphasized in the alternative design. (See Alternative E map and Tables S-1 and S-2.)

Alternative E particularly addresses Issue Areas 1 (Subsistence) and 3 (Biodiversity and Wildlife), in that it reduces acres of deer habitat, old-growth, and wildlife riparian habitat the least. It also responds to concerns in Issue Area 4 (Log Transfer Facilities and Camp Locations) by harvesting the smallest amount of volume, and using only one LTF and logging camp for the shortest period of time. Issue Area 6 (Social Values) is addressed by changing scenic resource quality the least.

The alternative proposes to harvest 24.5 mmbf of timber (sawlog and utility) on 1,665 acres. There would be approximately 8.4 miles of new road construction and 21.6 miles of reconstruction.

The former LTF at Sunny Cove would be reconstructed as a bulkhead to facilitate loading logs on barges. An upland camp would likely be located at Corner Bay.

RMOs for this alternative include closing all temporary roads, and removing all bridges in VCUs 2041, 2160, and 2221. The Sunny Cove LTF bulkhead would be removed. Both gates would be closed on Road 7500; the road would be maintained at Level 2 for administrative (high clearance vehicle) traffic only. The remaining roads in VCU 2200 would be closed, with drainage structures removed.

Alternative F

In Alternative F, harvesting would be concentrated in all three drainages (Indian River, Freshwater, and 10-Mile Creek). The alternative emphasizes timber sale economic efficiency and receipts to Federal, State, and local governments by utilizing cost efficient, ground-based yarding and harvest systems. Helicopter yarding systems would be used only where necessary. Uneven-aged management is utilized where necessary to maintain resource values. (See Alternative F map and Tables S-1 and S-2.)

Alternative F particularly addresses Issue Area 5 (Economic Values), in that it generates the largest income and opportunity for jobs.

Summary

The alternative proposes to harvest 36.9 mmbf of timber (sawlog and utility) on 2,355 acres. There would be approximately 9.7 miles of new road construction and 22.1 miles of reconstruction.

A new LTF (Sunny Too), approximately 1,000 feet west of the former LTF at Sunny Cove, would be constructed as a bulkhead to facilitate barging. A floating camp would likely be located at Corner Bay.

RMOs for this alternative include closing all temporary roads, and removing all bridges in VCUs 2041, 2160, and 2221. The Sunny Too LTF bulkhead would be removed. Only administrative (high clearance vehicle) traffic would be allowed on Road 7500 in VCU 2200. Recreational traffic would be discouraged on this road segment by closing both gates. On the newly built portions of Road 7500 in VCUs 2160 and 2041, drainage structures would be removed, and the road would be placed in Maintenance Level 1. Drainage structures would be removed on Roads 7508, 750071, 75004, 75028, 75012, 75003, and 75007.

Comparison Of Alternatives By Identified Issue

The following sections compare the alternatives by identified issue, proposed activity, and environmental consequence. This comparison draws together conclusions from information presented throughout the EIS, and briefly summarizes analysis results. The no-action alternative (Alternative A) is the baseline for comparing. (See Tables S-1 and S-2 for numerical comparisons.)

Issue Area 1

Subsistence

Concerns about potential impacts of further deer winter range reductions affecting subsistence deer hunting needs were evaluated. No significant possibility of a significant restriction to subsistence use was found for any Indian River Project alternative. (See Subsistence, Table 4-24). Alternative E has the least potential effect (reduced habitat capability) on subsistence use of deer; Alternative F would have the highest effect.

However, considering cumulative effects, it is projected that there is a significant possibility in all alternatives (including the no action alternative) of a significant restriction for subsistence use of deer. Over the short-term (year 2010), this is due to the likelihood of a critical winter occurring on average once every 11 years, resulting in season and/or bag limitations. Over the long-term (year 2095), this is due to demand that cannot be met from an ever increasing human population on a smaller supply of deer.

The area used by Tenakee Springs residents to harvest 90 percent of their deer would retain sufficient habitat capability to meet all current, local subsistence demand. This area, however, is unable to meet non-subsistence demands under all alternatives, including the no-action alternative. This indicates that there may be a need to restrict non-subsistence harvests of deer in the Tenakee Inlet area on a season-by-season basis.

Issue Area 2

Fish Habitat and Water Quality

Maintaining stream buffers on all Class I and II streams and many of the Class III streams, along with avoiding Riparian Management Areas, will result in no significant direct, indirect, or cumulative effects on fish or water resources in all of the action alternatives.

Issue Area 3

Biodiversity and Wildlife

Direct and indirect effects on wildlife habitat acres for Management Indicator Species (MIS) would occur in all action alternatives as a result of timber harvest and road construction reducing wildlife habitat acreage. The estimated habitat loss for Sitka Black-tailed deer ranges from 4 to 7 percent under the action alternatives. Effects were reduced to acceptable levels in all alternatives by maintaining old-growth habitat in non-development land use designations (28 percent of the Project Area is in Old-growth LUD), maintaining 1,000-foot beach and estuary fringes, maintaining buffers on all Class I and II streams, maintaining a minimum of ten percent canopy structure in all harvest units, and maintaining Riparian Management Areas. In addition, some portions of Timber Production and Modified Landscape LUDs would remain undeveloped, due to oversteepened slopes, unstable soils, and inability to access timber stands.

Since the majority of harvest would occur in old-growth habitat, habitat reductions are proportional to the acres harvested. Alternative F harvests the most acres, and results in the largest reduction. Alternative E harvests the least acres and would reduce old-growth habitat the least. Reductions in wildlife riparian habitat would also occur in all action alternatives, with Alternative F reducing the most and Alternative E reducing the least.

In the alternatives, limited harvest is proposed within wildlife travel corridors. Wildlife travel corridors within the Project Area are also maintained in the estuary and beach fringe buffers, RMA buffers, and by applying Road Management Objectives. (See connectivity discussions in the Wildlife section of Chapter 4 of the EIS. Also see EIS Appendix D.)

During the TLMP revision planning process, the TLMP team developed a network of old-growth Habitat Conservation Areas (HCAs) to address wildlife population and biodiversity. No harvest units are located in these HCAs for this project.

An analysis of interior old-growth patches was also performed. In all action alternatives, the greatest impact would be the fragmentation of large patches into smaller patches. The action alternatives would result in another decrease of 5 percent or less in the contiguous old-growth acres, across the Northeast Chichagof Island landscape.

In summary, it is unlikely that this project will have a major effect on biodiversity or wildlife species. This conclusion is based on analysis of the effects on habitat acre changes for Management Indicator Species; mitigation measures such as Old-Growth LUDs; and analysis of patch old-growth distribution and size. (See the Wildlife section in Chapter 4 of the EIS.) Cumulatively, none of the alternatives differ significantly.

Issue Area 4

Log Transfer Facilities And Camp Location

Three log transfer facilities (LTFs) are considered in this project. Alternative B would have two LTFs: a new facility near the mouth of 10-Mile Creek and another at the former Sunny Cove LTF site. Alternatives C and E would reconstruct the former Sunny Cove LTF. Alternative D would use only a new site near the mouth of 10-Mile Creek. Alternative F proposes a new LTF in Sunny Cove (labeled "Sunny Too"), located west of the former site. Use of either Sunny Cove site would impact the East Tenakee Trail. Potential conflicts between pedestrian and logging traffic would occur during timber sale activities, which would normally occur between March and November for three to five years. Mitigation measures have been developed to reduce the potential conflict. (See Appendix C and the Heritage Resources section in Chapter 4 of the EIS.)

All action alternatives specify that logging camps will be located outside of the Project Area. In Alternatives B, C, E, and F, the timber purchaser would likely locate a logging

Summary

camp (either a floating or a land based camp) in the Corner Bay area, which is south and across Tenakee Inlet from the Project Area. The location of the floating camp for Alternative D would likely be at Seal Bay, which is across the Inlet from the proposed LTF at 10-Mile Creek.

The proposed camp locations address the issues of noise pollution and disruption of community activities to Tenakee Springs residents. Camp noise impacts would be minimal, if any. However, some noise pollution to Tenakee residents/visitors may be anticipated by any alternative using either of the Sunny Cove LTFs.

Also, with the camps located away from the Project Area, there is less likelihood of competition for deer (the prime source of hunting activities).

Issue Area 5

Economics

Implementation of an action alternative would create opportunities for an estimated 196 to 304 jobs over a four-year period. These jobs would generate approximately \$8.4 million (Alternative B) to \$13 million (Alternative F) in income. These figures represent both direct and indirect employment and income effects, and were calculated using the IMPLAN economic model. The City of Tenakee Springs would receive income for use of the Sunny Cove tidelands. (Income would be based on volume, user fees, and taxes, in accordance with a Memorandum of Understanding between the Forest Service and Tenakee Springs.)

A decline in recreation/tourism income in Tenakee Springs is likely in all action alternatives proposing an LTF in Sunny Cove. This is due to potential visual and noise disturbances, and the possible lack of access to the Indian River Road during the hunting season. Alternative D, which proposes very little harvesting in the Indian River drainage and no LTF in Sunny Cove, would have the least effect on recreation/tourism income.

For Alternative C, recreation/tourism income would likely return to pre-sale levels following harvest, since the lower drainage of Indian River would not be altered by harvesting. While Alternative B harvests timber throughout the Project Area, potential impacts would be mitigated by emphasizing uneven-aged management. This would allow the area to recover quickly which, in turn, would allow for a more wildland recreation experience and resultant return of recreation/tourism income to pre-sale levels. Under Alternatives E and F, recreation/tourism income would not return to pre-sale levels as quickly as Alternative B, due to their emphasis on clearcut with retention harvest methods.

In all action alternatives, the noise from timber sale activities may decrease the ability of Tenakee Springs businesses and independent guides to provide a wildlands experience for tourists. The noise would impact portions of the Project Area during active timber harvest (March through November, for three to five years).

Implementation of any of the alternatives is not expected to have any major direct, indirect, or cumulative impacts on the economics of the local communities and their residents. This is due largely to their dependence on commercial fishing and subsistence, rather than timber, as the primary factors influencing the communities.

Issue Area 6 Social Values

The social values issue has a number of facets. In the following discussion, each identified sub-issue is responded to separately, but many of them are intricately intertwined.

Impacts to East Tenakee Trail Use. Noise originating from either LTF in Sunny Cove could disturb people expecting a wildland experience on the East Tenakee Trail (Alternatives B, C, E, and F). Noise would be from generators and truck traffic, which would be in operation during active timber harvest.

In all action alternatives, trail use could be disrupted during road reconstruction. Alternative D would have the least impact on trail users, because once the heavy equipment has passed through the area, this portion of road would no longer be used. Alternative F would have the largest impact, because the trail would be moved and modified to accommodate construction of the Sunny Too LTF. In all action alternatives, the contractor would be required to maintain clear access to the East Tenakee Trail during sale operations.

Impacts on the City of Tenakee Springs Residents and Visitors. In all action alternatives, the direct effect of noise on Tenakee Springs would probably be minimal. A ridge system lies between the town and the main timber harvest areas. Harvest activities in Alternative D are at least eight miles from Sunny Cove. Under the other action alternatives, harvest activities are at least three to six miles away. The noise, however, may decrease the ability of Tenakee Springs businesses and independent guides to provide a wildlands experience for tourists. The noise would impact portions of the Project Area during active timber harvest.

The Tidelands Memorandum of Understanding between the Forest Service and the City of Tenakee Springs stipulates that helicopters (used for harvest and personnel transport) would only be allowed a certain flight path in the timber sale area except in case of emergency. This provision would confine the helicopter noise to certain designated areas. (See the Mitigation Measures section in Appendix C of the EIS.)

No alternative should affect the Indian River fish populations. Riparian Management Area prescriptions are expected to prevent any degradation to the aquatic resource. For further information see the Soils, Fish and Water section in Chapter 4 of the EIS.

No reduction in sport deer bag limit or season is expected as a result of this project. For further information, see the Wildlife, Subsistence, and Recreation sections in Chapter 4 of the EIS.

All or most Indian River roads may not be available for recreation use during the sale due to possible conflicts with logging operations and LTF use. Alternative D would have the least impacts because the main Indian River drainage road would be available.

In Alternatives D, E and F, proposed RMOs would close all roads following completion of harvest. This would reduce the Indian River Road System Recreation Place by 81 percent.

Recreation activities by Tenakee Springs residents and tourists would be disrupted to some extent during harvesting. Alternative D would have the least impact; Sunny Cove would only be used to off-load heavy equipment at the beginning of the project, and only one harvest unit would be taken from the Indian River drainage. Alternative F would have the most impact; it has the highest volume to harvest, and would use a LTF in Sunny Cove. Following harvest, recreation activities would take place in a more developed environment.

Summary

Impacts to the 10-Mile Creek Area. In Alternatives B and D, there would be noise and visual impacts at the 10-Mile Creek LTF site. Alternative B would have less effect than Alternative D, because less volume is transferred at 10-Mile Creek. Alternatives C, E, and F would not use this LTF site.

Log rafting and transporting may disrupt fishing at the 10-Mile Creek LTF during active timber harvest (three to five years). No saltwater habitat loss is anticipated.

In Alternatives B and D, the 10-Mile Recreation Place experience would change from Semi-Primitive Motorized (SPM) to Roaded Modified (RM). The proposed RMOs for Alternative B would also add the 10-Mile Creek LTF development into the large, maintained Indian River Road System Recreation Place.

Impacts to Karst Resources. No degradation is expected to karst resources during or after harvesting and road building in any of the action alternatives. Recreational use of the resource may be curtailed during active timber harvesting, due to lack of road access.

Impacts to Heritage Resources. The East Tenakee Trail has been determined eligible for inclusion on the National Register of Historic Places. Only Alternative F impacts the trail. A determination of adverse effects has been submitted to the State Historic Preservation Office (SHPO). A detailed mitigation plan would be developed in cooperation with Federal, State, and local governments if this alternative is selected. See the Heritage Resources section in Chapter 4 of the EIS.

Impacts Caused by Logging Camps. Forest Service contractor's compliance with State and Federal laws would address potential pollution problems from the logging camps and timber management activities. Tenakee Springs' concerns have been addressed by locating the camp away from the Project Area. The camp would likely be at Seal Cove in Alternative D, and at Corner Bay in all other action alternatives. (Additional information on logging camps is in the Transportation System section of EIS Chapter 4.)

Impacts to the Sunny Cove Area. Alternative D would have the least impact on recreational use of the Sunny Cove shoreline because the LTF would only be used for mobilization (unloading heavy equipment from barges). Of the alternatives that use a LTF in Sunny Cove, Alternative B has the smallest timber volume and would also be using the 10-Mile Creek LTF. These two factors would limit the disruption of Sunny Cove recreation use. Alternative F would have the highest impact to the non-National Forest shoreline; the new Sunny Too LTF in this alternative would have a much larger visual impact than the former LTF, extending 200 feet into the cove and projecting at least 5 feet higher than the mean-high tide.

Both LTF sites at Sunny Cove could displace private fishing guides for three to five years due to log rafting and transport. No saltwater habitat loss is anticipated.

Impacts to the Overall Recreation Use of the National Forest System land in the Project Area. In all cases, the area would change from a more wild experience to a more developed one. Alternative D would have the least impact on the existing recreation experience, with a 26 percent acreage change in Semi-Primitive Non-Motorized (SPNM) and a one percent acreage change in Semi-Primitive Motorized (SPM). The Roaded Modified (RM) acreage would increase from 20 percent to 47 percent. Alternative F would have the most effect on the existing recreation experience.

During this entry, Alternative F would visually disturb the Project Area landscape the most and Alternative E the least. Alternative D will have the least visual disturbance in the immediate Indian River drainage.

When harvesting is completed, the inventoried recreation opportunities would be RM because of harvest-related disturbance along the road system. In Alternative D, the roads in the Indian River drainage would revert to a Roded Natural (RN) or SPM experience sooner than the rest of the Project Area because of the lack of new disturbance from this entry.

Considering the cumulative effects of harvest and rehabilitation at LTFs, the Recreation Place recreation opportunity would remain RM until the areas regain the qualities of a Roded Natural (RN) experience. This would likely occur after approximately five years. Qualities of a Semi-Primitive Motorized (SPM) experience would be regained after approximately ten years.

The existing Recreation Sites (Sunny Cove anchorage, the beaver ponds area, dispersed camp sites in the 10-Mile Creek area, a cave, a trail leading to alpine on the Freshwater/10-Mile Pass) would not be disturbed in any alternative. Access to some sites could be impeded, however, depending upon the proposed RMOs. In Alternatives D, E and F, the proposed RMO would not maintain the road system for recreation traffic. The sites affected would be the cave and the trail.

Issue Area 7

Alternatives To Traditional Clearcutting

Traditionally, the term “clearcut” refers to the harvest method in which the entire timber stand within a unit is harvested. All clearcuts under this project would retain at least 10 percent of the stand, to comply with standards and guidelines for protection of high value marten habitat and to address other resource concerns. These units would therefore not truly be traditional clearcuts. However, in order to serve as a standard against which to compare alternative harvest methods, these clearcuts with green tree retention are referred to as traditional clearcuts for this project. Alternative B has the smallest number of acres (813) harvested by this method, and Alternative F has the largest number of acres (1,461). (See Table S-1).

Using ground-based systems (shovel, cable, and tractor logging) for traditional clearcutting has provided the highest economic return. The use of helicopters for non-traditional harvesting (patch clearcuts and group selections) is very costly, and therefore would have a correspondingly lower economic return. Alternative F proposes a higher percentage of clearcut volume than the predominant partial harvest methods in Alternative B. Of the action alternatives, Alternative F would result in the greatest net stumpage value, most jobs, and the greatest increase in regional income.

There are also areas where, due to unstable ground or distance from the nearest road, helicopter logging is currently the only means available. This type of logging is less impactive to nearly all resources; however, to log by helicopter means that future entries into that area will also be by helicopter. (See Table S-1).

Mitigation Measures

Mitigation measures were considered and identified during the planning phase of this project. Standards, guidelines, and direction from the 1997 TLMP, the Alaska Regional Guide, and applicable Forest Service manuals and handbooks were applied in alternative development, unit boundary design, and road corridor locations for all alternatives. A brief summary of mitigation measures common to all alternatives is included in Appendix C of the EIS. (Note: Analyses of project effects in Chapter 4 of the EIS also include discussion of mitigation measures specific to each resource.)

Specific mitigation measures were identified that reduce or eliminate adverse effects. These measures, as applied to each harvest unit and road, are identified on the respective unit and road cards. Unit Cards are included in Appendix J, and Road Cards are in Appendix I of the EIS. These cards list design considerations and provide an important mechanism for tracking project implementation.

Monitoring

Monitoring is designed to determine if standards and guidelines, and resource management objectives of the Indian River Project have been met. The results are used to verify the timely implementation and effectiveness of selected mitigation and protection measures. Regardless of which alternative is selected, monitoring activities will be conducted over the course of the project. Three types of monitoring (implementation, effectiveness, and validation) were recognized in the development of the monitoring plan. The plan is fully described in Appendix C of the EIS.

Implementation monitoring assesses whether a project was implemented as designed and whether or not it complies with the TLMP. Effectiveness monitoring examines the effectiveness of the project's design, including unit layouts, road location, and mitigation measures intended to preserve natural resources and their beneficial uses. Each activity is monitored separately, and the resulting data is analyzed and reported by the Forest Service. Validation monitoring is conducted at the Regional level in conjunction with research and is identified in the Forest or Regional planning process (TLMP).

Identification of the Forest Service Preferred Alternative

The Forest Service has identified Alternative C as the Preferred Alternative. All of the alternatives will be examined before preparation of a Final EIS. Public comments will be taken into consideration, as well as additional information and analysis. Comments on the Preferred Alternative and the other alternatives in this Draft EIS will be most useful if they focus on particular aspects of the alternatives that the reviewer either likes or dislikes. The final selected alternative may be the same as the Preferred Alternative, or a modified version, or an entirely different alternative.

Table S-1
Summary Comparison of Planned Actions, by Alternative

	Alt. B Proposed Action	Alt. C	Alt. D	Alt. E	Alt. F
Volume, Acres, and Units					
Sawlog Volume (mbf)	19,051	22,969	19,222	19,602	29,505
Sawlog and Utility Volume (mbf)	23,814	28,711	24,027	24,502	36,881
Harvested Acres	1,885	1,856	1,586	1,665	2,355
Number of Harvest Units	85	82	71	78	106
Logging Systems by Acres					
Cable	327	655	514	546	687
Cable/Helicopter*	63	121	58	89	121
Helicopter	1,467	990	930	975	1,410
Shovel	28	90	84	55	137
Logging Systems by Volume (mbf)					
Cable	5,302	11,723	9,442	9,564	12,896
Cable/Helicopter*	1,198	2,212	1,014	1,709	1,939
Helicopter	16,932	13,128	11,962	12,149	19,451
Shovel	382	1,648	1,609	1,080	2,595
Harvest Method by Acres					
Clearcut w/Green Tree Retention	813	1,173	992	1,115	1,461
Overstory Removal	325	186	151	159	244
Patch Clearcut	118	167	120	85	326
Group Selection	569	150	160	131	95
Single Tree Selection	60	180	163	175	224
Harvest Method by Volume (mbf)					
Clearcut w/Green Tree Retention	15,831	22,905	19,189	20,078	28,173
Overstory Removal	4,139	2,435	1,905	2,178	4,048
Patch Clearcut	820	1,435	1,047	433	2,297
Group Selection	2,409	538	596	505	381
Single Tree Selection	615	1,398	1,290	1,308	1,982
Roads and Log Transfer Facilities					
New Road Miles	7.8	9.5	9.2	8.4	9.7
Reconstructed Miles	21.6	21.7	10.7	21.6	22.1
Temporary Road Miles	1.9	3.1	2.4	2.6	3.5
Number of LTFs	2	1	1	1	1
Bridges					
Number of Existing Bridges Replaced	22	22	15	22	22
Number of New Bridges	7	7	6	7	7
Log Transfer Facilities Location					
Sunny Cove	1	1	0	1	0
Sunny Too	0	0	0	0	1
10-Mile Creek	1	0	1	0	0
Camp Location					
Corner Bay - land-based camp	0	0	0	1	0
Corner Bay - float camp	1	1	0	0	1
Seal Bay - float camp	1	0	1	0	0
Post Harvest Road Management Objectives					
Mainline Roads Open	Yes	Yes **	--	Yes **	Yes **
Close All Roads	--	--	Yes	--	--
Timber Economics					
Annual Direct/Indirect No. of Jobs (over 4 yrs.)	49	59	49	50	76
Annual Average Wages -\$ millions (over 4 yrs)	\$2.1	\$2.5	\$2.1	\$2.2	\$3.3

* Most of unit is cable, but one or more settings are helicopter.

** Open to administrative traffic only.

Summary

Table S-2
Summary Comparison: Effect on Resources, by Alternative

	Alt. A Existing Condition ¹	Alt. B Proposed Action	Alt. C	Alt. D	Alt. E	Alt. F
Old-Growth % Remaining	86.6	79.6	78.7	79.7	79.1	76.2
Old-Growth Acres Remaining						
Alpine/Subalpine	539	537	537	537	537	537
Brushfields	2,144	2,115	2,106	2,107	2,061	2,098
Colluvial/Fluvial/Coastal	2,234	2,071	1,978	1,971	2,043	1,935
Forested Hills	306	281	281	281	281	281
Lowland Wetland-Forest	1,132	1,123	1,117	1,121	1,110	1,114
Moderately Steep Forested Slopes	3,840	3,476	3,444	3,626	3,453	3,298
Steep Forested Slopes	5,873	5,165	5,130	5,141	5,184	4,867
Wetlands Acres Affected						
% Affected in Harvest Units	0.5	2.0	1.6	1.3	1.9	2.7
% Affected by Roads	0.5	0.7	0.8	0.8	0.8	0.8
Wildlife Habitats: % of Habitat Affected						
Beach Fringe	-21	-22	-21	-22	-21	-21
Estuary Fringe	-2	-2	-2	-2	-2	-2
Riparian	-30	-36	-37	-37	-34	-38
Old-Growth	-10	-20	-20	-18	-18	-22
Second-Growth	+1,230	+2,519	+2,486	+2,304	+2,209	+2,814
Alpine/Subalpine	0	0	0	0	0	0
Wildlife Habitat						
% Change in Suitable Habitat						
Sitka Black-tailed Deer	-10	-15	-16	-15	-14	-17
Brown Bear	-6	-10	-10	-10	-9	-11
River Otter	-32	-39	-40	-40	-37	-41
Marten	-13	-20	-21	-20	-20	-24
Red Squirrel	-8	-17	-17	-15	-15	-19
Brown Creeper	-23	-36	-35	-33	-32	-39
Red Breasted Sapsucker	-10	-23	-23	-21	-20	-26
Hairy Woodpecker	-17	-33	-32	-29	-29	-37
Bald Eagle	-37	-45	-46	-46	-43	-48
Recreation Opportunity Spectrum						
% of Acreage on National Forest Lands						
Semi-Primitive Non-Motorized	79	49	50	53	51	46
Semi-Primitive Motorized	1	0	1	0	1	1
Roaded Modified	20	51	49	47	48	53
Fish/Water Quality						
Total Road Miles in Stream Buffers	6.6	7.4	7.7	7.7	7.6	7.8
Number of Stream Crossings						
Class I/II	88	110	118	116	116	119
Class III	13	19	24	22	24	25
Total	101	129	142	138	140	144
Heritage Resources						
Impacts on Historic Property	No	No	No	No	No	Yes

¹ Alternative A reflects action taken from 1956 through 1996.

Table S-2 continued
Summary Comparison: Effect on Resources, by Alternative

	Alt. A Existing Condition ¹	Alt. B Proposed Action	Alt. C	Alt. D	Alt. E	Alt. F
Subsistence Effects: Project and (Cumulative) Effects	Significant Possibility of a Significant Restriction of Subsistence Use					
Abundance or Distribution:						
Deer	No (Yes) ²	No (Yes)	No (Yes)	No (Yes)	No (Yes)	No (Yes)
Brown Bear	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Furbearers	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Fish Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Other Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Competition:						
Deer	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Brown Bear	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Furbearers	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Fish Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Other Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Access:						
Deer	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Brown Bear	No (Yes)	No (Yes)	No (Yes)	No (Yes)	No (Yes)	No (Yes)
Furbearers	No (Yes)	No (Yes)	No (Yes)	No (Yes)	No (Yes)	No (Yes)
Fish Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Other Resources	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)

¹ Alternative A reflects action taken from 1956 through 1996.

² Each column displays both project and (cumulative) potential for restrictions of subsistence use.



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