United States
Department
of Agriculture

Forest Service

Tongass
National Forest

R10-MB-418

September 2000

Kupreanof Island Analysis

United States Department of Agriculture | Forest Service | Alaska Region | Tongass National Forest
Petersburg Ranger District
P.O. Box 1328
Petersburg, AK 99833

File Code: 1950
Date: September 15, 2000

Dear Reviewer:

Enclosed is a draft copy of the Kupreanof Island Analysis for your review and comment. This report provides a broad look at existing natural resource conditions and patterns of human use, and describes how the Forest Plan guides management of National Forest lands on Kupreanof Island. It also lists ongoing projects and recommends possible projects that could take place in the next 20 years. This is not a decision document. The projects listed have either been through, or will go through National Environmental Policy Act (NEPA) analysis before they can be implemented, which will allow public involvement.

By looking at Kupreanof Island as a whole, we hope to see how activities and resources are linked together on the island. This analysis shows how projects can be designed to accomplish Forest Plan management objectives. Consideration of public comments has been essential to this analysis and provides the basis for developing project ideas and objectives. We reviewed over 40 environmental documents and other reports associated with Kupreanof Island from the past 25 years. We held public meetings in both Petersburg and Kake. Comments received on past projects, at public meetings, and during this analysis have been included in this document.

This document has been a long time in preparation. We began the project in 1995. In 1997, a new Forest Plan was issued which changed the way we manage forest resources. Modifications were added to the Forest Plan in 1999. All current Forest Plan direction has been incorporated into this document.

Thank you for your participation in this important project. We welcome your additional comments. We are requesting them by December 1, 2000. For more information or questions, please contact Bob Dalrymple (907) 772-3871.

Sincerely

PATRICIA A. GRANTHAM
District Ranger

Kupreanof Island Analysis

United States Department of Agriculture
Forest Service
Alaska Region
Tongass National Forest
Petersburg Ranger District

For information, contact:
Bob Dalrymple
Tongass National Forest
P.O. Box 1328
Petersburg, Alaska 99833
(907) 772-3871

Abstract: This document describes the national forest resources on Kupreanof Island and lists Forest Plan direction for these resources. Projects and activities are suggested based on the Forest Plan and on public concerns and preferences.

Table of Contents

List of Maps (see separate map packet)

Kupreanof Island Analysis

Introduction

About This Project

Welcome to the Kupreanof Island Analysis. This document is an island-wide planning analysis. Two previous island-wide analyses with which you may be familiar are the Mitkof Landscape Design (1995) and the Wrangell Island Analysis (1998). This level of planning falls between the forest-wide level of the Tongass Land and Resource Management Plan (Forest Plan) and site-specific project planning. Mid-level planning takes a broader view and sets the stage for detailed studies or close-in views.

As noted above, forest planning is composed of varying levels at differing scales. Imagine for a moment that the Forest Plan (forest-wide level) looks at Kupreanof Island from a satellite. The high-altitude view in Figure 1 reveals how Kupreanof Island fits into the broad scale of the entire Tongass National Forest.

This particular Island Analysis takes a closer look at Kupreanof Island as from a floatplane at an altitude of 3,000 feet. From the floatplane, we see how human activities fit into the Kupreanof Island landscape area. (See Figure 2.)

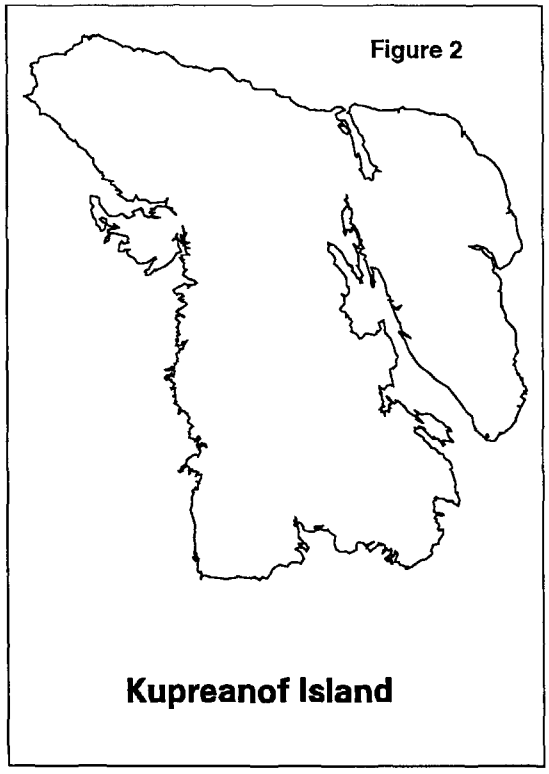
Site-specific project planning looks closer still - from ground level. Site-specific project planning looks at how each proposed project fits on the ground, with neighboring projects outlined in the island analysis design (see Figure 3). Each of these planning efforts is important for the overall management of Kupreanof Island.

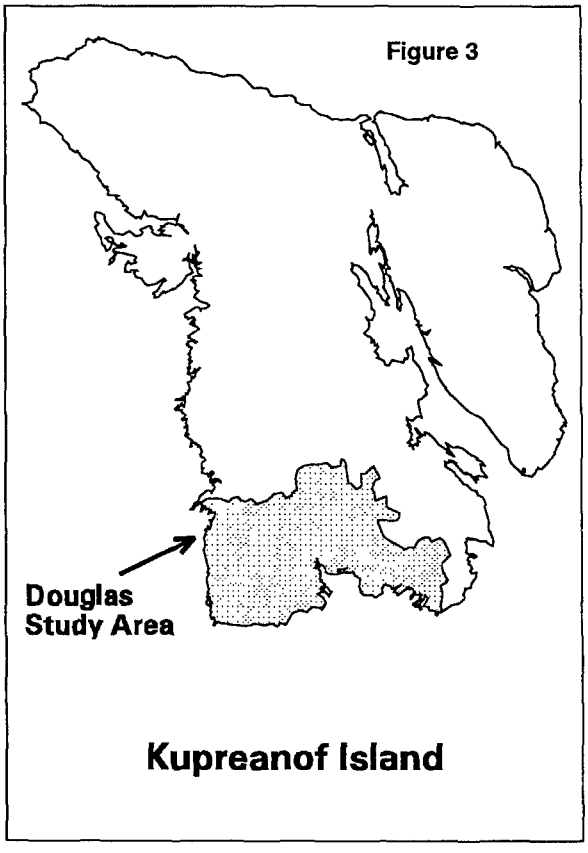
The Kupreanof Island Analysis provides a look at existing natural resource conditions and human use and activities on the island. Over time, conditions may change and the Kupreanof Island Analysis will be updated.

This analysis also recommends possible future projects. Implementation of future projects would require National Environmental Policy Act (NEPA) analyses. You will have the opportunity to comment on projects proposed in this document during site-specific planning.

Figure 1

Tongass National Forest with Kupreanof Island Highlighted





Why We Decided to Do This Project

We began an island-wide analysis for two reasons. First, we wanted to look at relationships between ecological processes and forest management across Kupreanof Island. When planning projects such as roads, timber harvest, recreation facilities, or fish and wildlife habitat improvements, we focus on small project areas in one- to three-year time frames. Past project implementation has resulted in the present natural and modified landscapes across Kupreanof Island. Island-wide planning helps us anticipate the cumulative effects of various projects distributed over space and time on the island. For example, knowing where possible future recreation development might occur helps us plan timber harvest or other management activities that would be compatible. By looking ahead, considering public desires, and evaluating the ecological processes across the island, we will have a better understanding of what projects to plan and how to prepare for informed decisions on those projects.

Second, we hope to provide a user's guide to apply Forest Plan direction to Kupreanof Island. How does the Forest Plan, which sets broad goals for a 17-million-acre forest, affect future management of National Forest lands on Kupreanof Island? We hope this document answers that question for you, and encourages your participation in future project planning on Kupreanof Island.

How We Did It

We started this project knowing there has been a lot of public participation in the past on other projects. We wanted to use this information, so the project team looked at public comments from over 40 documents from the last 25 years that have been completed on Kupreanof Island. These comments were summarized and new comments were collected. The public comments were used throughout our analysis to identify human uses and needs, develop project ideas, and propose management options.

Next, we examined the Forest Plan. Any recommendations made in the Kupreanof Island Analysis must follow the direction, standards and guidelines in the Forest Plan. Because of its importance, sections of the Forest Plan are quoted throughout this report.

The next step was to review the current condition of natural and social resources on Kupreanof Island and the factors that influence ecosystem dynamics.

Finally, we proposed projects based on ecosystem sustainability, the context of other ideas, anticipated cumulative effects, and public desires. Actual project development depends on funding and the outcome of environmental analysis.

Children enjoying the Kake Fishing Derby

Chapter 1

Public Comments and Ideas

Chapter 1 - Public Comments and Ideas

The Kupreanof Island Analysis began in 1995 with a review of public comments on projects that have taken place on Kupreanof Island over the past 25 years. Comments were reviewed on a variety of projects such as timber sales, a recreation plan, landslide restoration, a wilderness management plan, outfitter and guide use, trails, fishpass and stream habitat structures, recreation site construction projects, and public open houses.

Past comments were summarized and mailed to the public with a request for any additional comments that should be considered in the analysis. To involve more people, collaborative learning workshops were held in Kake and Petersburg in autumn of 1996. Then, follow-up meetings were held in May of 1997. Many people took time to work together with the Forest Service, and to suggest priorities for managing Kupreanof Island.

Following is a summary of comments collected for this analysis. New and past public comments form the basis for developing project ideas and objectives for Kupreanof Island.

Wildlife

Past Comments

- Many people pointed out that timber harvest causes fragmentation of wildlife habitat, which is detrimental for some species. They thought existing old-growth tracts should be left intact to sustain deer and other old-growth-dependent species. Over the years, people have supported the use of wildlife habitat retention areas, habitat conservation areas, and wildlife migration corridors as important ways to protect wildlife. They said designation of wildlife habitat areas should apply forever, and be part of the landscape.
- Many people said they want the Forest Service to protect deer winter habitat. Timber harvest units should not be located on south-facing slopes in high value winter deer range.
- Some people said that roads can be detrimental to deer populations. They said roads create travel routes for wolves, resulting in fewer deer. Others were concerned about poaching if more roads are opened. Still others suggested that roads create barriers between upland habitat and winter beach habitat for deer and other species.
- Some people commented on animal and plant species found on Kupreanof Island that, in the past, were considered for listing as threatened or endangered species (It has since been determined that these species should not be listed as threatened or endangered).
- Others said wildlife viewing opportunities should be maintained or enhanced on the island.

New Comments

- Illegal harvest of bear and moose is a concern. Some people suggested the Forest Service and the Alaska Department of Fish and Game meet to discuss this problem
- The issue of deer management is important to many people. Deer are the main subsistence food for people in Kake, and many felt that management of Kupreanof Island should emphasize deer for subsistence use. Some people said that one or two deer per year are not enough to meet subsistence needs, and that deer populations need to increase so families could harvest five or six deer per year.

- Several ideas were generated to preserve or increase deer habitat on the island:
  - Control wolf populations.
  - Do not encourage roads. Consider how roads affect subsistence access and competition.
  - Do not harvest any more timber on Kupreanof Island.
  - Timber harvest plans should take into account impacts on subsistence.
  - Protect winter deer habitat.
  - Designate old-growth reserves with care.
  - Consider studying an 80-year-old clearcut on Woewodski Island to get a sense of how deer habitat is affected.

Timber

Past Comments

- Many people told us to stress multiple use, with less emphasis on timber harvest. They said that timber should not take precedence over other resources such as recreation, fish, tourism, wildlife, and watershed protection. In addition, it was pointed out that the fishing and tourism industries each create more profit that the timber industry.
- Some people said timber sales need to be increased to meet market demand of the independent timber industry. Other comments ranged from not wanting any more timber harvest to wanting a lower harvest rate sufficient to support local economies. Many people said timber sales must be profitable, that below cost sales should no longer be offered
- Many people thought that harvested timber should be processed into finished products before being exported to provide more jobs for Alaskans. Others argued that such a restriction would unfairly limit profitable exports that help balance the national trade deficit.
- One person suggested that the difference between planned timber harvest volume and the amount actually harvested should be analyzed to effectively show the long-term effects of logging.
- Many people suggested that the Forest Service use harvest methods other that clearcutting, and be able to justify the use of clearcuts when they are used. Some people said smaller trees with poor quality timber shouldn't be harvested, while others said small, low quality trees should be harvested to avoid high-grading only the best trees.
- A few people told us that the Forest Service should have a 100-year or 500-year timber plan for the area. Many people recommended a Kupreanof Island analysis before anymore timber harvest is allowed on the island. They were concerned about the cumulative effects of logging.
- Several people commented that the Forest Service should not plan to harvest 100 percent of the suitable forest in the remaining 50 years of this first 100-year rotation. Some said they'd like to see the harvest rotation changed from 100 years to 200-400 years to reestablish old growth and help protect wildlife. Others suggested switching to a 150-200 year rotation.
- It was suggested that the Skoags Creek watershed be placed in a natural setting management prescription. This would protect the desired features including deer subsistence, the view from Petersburg, the recreational value of the creek, and the natural setting around the Skoags Creek home sites.
- Some people suggested no log transfer facilities be built in Duncan Canal, Wrangell Narrows, or on southern Kupreanof Island.

- People described some areas they would rather not see harvested. The areas most often mentioned were:
  - Duncan Canal
  - Duncan Salt Chuck Creek
  - Rocky Pass
  - Beecher Pass
- Other areas mentioned were:
  - Lindenberg Peninsula
  - Castle River
  - Hamilton Bay
  - Big John Creek
  - Mitchell Slough
  - Irish Creek
  - Five Mile Creek
  - Tower's Arm
  - Petersburg Creek
  - Point Barrie
  - Boulder Point
  - Bohemia Lakes
  - Little Duncan Bay
  - Portage Bay,
  - Kah Sheets Bay
  - Coho Creek
- General areas included:
  - South end of Kupreanof Island
  - Wrangell Narrows
  - Waterways and Beaches
  - Slopes over 70 percent
  - High volume old growth
  - Old growth below 800 feet in elevation
  - The three largest old-growth blocks in each of the 21 Tongass ecological provinces
  - High hazard soils
  - Eligible wild, scenic, and recreation rivers

New Comments

- There is considerable concern about the amount of timber remaining and the sustainability of the forest products industry. For economic stability, it is important that the forest products industry be maintained at a sustainable level. Many people suggested slowing down the rate of timber harvest and developing smaller sales to achieve sustainability. Sustained ecological health of the island may also depend on a reduced harvest rate.
- Some people would like to see second-growth timber managed more intensively. Second growth should be thinned for commercial use. Managing second growth would also extend deer browse for a few years.
- Some people want no more timber sales on Kupreanof Island. They feel the land should be maintained for old-growth-associated species and for subsistence uses. Others felt that some timber harvest was okay, but clearcutting should not be the method.
- Someone stated that the Organized Village of Kake passed a resolution that there be no more harvesting on Kupreanof and Kuiu Island until questions are answered about sustainability. They said this is an issue of environmental justice since greater harvest occurs in the backyards of rural traditional users than near communities such as Sitka, Petersburg, Wrangell, and Ketchikan.
- Some people felt to keep the economy strong, value-added timber businesses are critical. These businesses would benefit locals by providing jobs, and making local lumber available for purchase. One person suggested the Forest Service require a maximum number of jobs be provided for each board foot harvested.
- Some people said the Forest Service should take the lead in promoting value-added timber businesses. Grants, loans and other incentives should be available to help in the transition to a value-added timber industry. The Forest Service should help facilitate construction of a regional dry kiln, planing mill, or sort yard. Information could be made available on value-added timber products from sources such as the Wisconsin Wood Products Lab, Washington State (CERT), and British Columbia Forestry.

- Local timber operators expressed a need for a steady, dependable supply of timber. Only with a dependable supply of timber can operators get the loans and investors they need to build a business. The Forest Service needs to consistently offer small sales to facilitate local timber businesses.

Recreation, Tourism, and Scenery

Past Comments

- Some people said that recreation and tourism are vital to southeast Alaska and requested more emphasis on recreation. Over the years, several projects on Kupreanof Island have been suggested. They are:
  - Maintenance of the Petersburg Lake/ Portage Mountain Loop Trail
  - Construct Bohemia Waterfall Trail
  - Reconstruct Petersburg Mountain Trail
  - Maintain Cathedral Falls Trail
  - Construct Irish Lakes Trail
  - Construct Upper Castle River Trail
  - Construct Indian Point Cabin
  - Construct small parking lots in the Bohemia Mountain Area
  - Construct Portage Bay Wildlife Viewing Platform
  - Construct Kake Longhouse Museum
  - Develop Totem Bay area cultural interpretation
  - Build more trails and tent platforms
- Some people questioned why the Forest Service builds recreation facilities when they have little money to maintain them.
- A number of people doubted that additional roads would be beneficial to recreation. One person reminded us that the Forest Plan provides for a broad spectrum of recreation opportunities, including non-roaded opportunities. The Forest Service needs to maintain primitive and roadless areas for recreation. Outfitting and guide services on Kupreanof Island rely on intact natural areas free from timber harvest and roads.
- Many people said that scenery is an important concern that affects tourism. Someone proposed that no harvest be allowed on established flight paths. Another person said that scenery is not important and timber harvest should not be reduced because of scenery concerns.

New Comments

- Some people expressed the need to keep areas of Kupreanof Island undeveloped to benefit recreation, scenery viewing, and tourism uses. Some boat-based tour guides explained that their businesses depend on wild places for hiking, wildlife viewing, and fishing. Roads and clearcuts detract from the value of their businesses by degrading scenic values and fish and wildlife habitat.
- People would like to see the natural settings around cabins and developed recreation sites retained. The setting around Castle River, Kah Sheets, and the Skoags Creek valley should be protected.
- Some people pointed out that existing recreation facilities should be maintained and improved.
- Kake residents had a number of ideas to increase recreation opportunities for locals and tourists. Hamilton Creek and other streams near Kake could be restocked. Individual campsites or campgrounds could be built for hunters. Residents and tourists could benefit from campsites and trails at Hamilton Bridge, Sitkum Creek, Whiterock Road, Seal Point and Cathedral Falls. More trails could be built at Goose Lake, along Big John Creek, and along Boot Lake (Sealaska land). The Forest Service could provide technical assistance for a wildlife trail along Gunnuk Creek. A boat ramp could be built at Point Macartney.

- Someone suggested putting in tent platforms or shelters with mooring buoys. They said this could accommodate more recreation users and spread some of the use away from public cabins.
- Some felt that we should be cautious about encouraging tourism. The effects of tourism on local recreation and subsistence users should be carefully considered.

Subsistence and Traditional Values and Customs

Past Comments

- Some people said the Forest Service must maintain enough habitat to support healthy, huntable populations of deer and other harvestable wildlife populations. They said timber harvest should be prohibited in subsistence areas. Others went farther to suggest that there should be no additional timber harvest on Kupreanof because it will restrict subsistence.
- A number of people told us they think the Forest Service doesn't analyze subsistence very well. They criticized the models and information base used to estimate wildlife habitat capability. Others pointed out that the subsistence analyses should include other species besides deer, including bear, waterfowl, shellfish, and salmon.
- A few people told us it wasn't reasonable in a timber sale analysis to suggest that subsistence users could go elsewhere. Travel to more distant locations may be dangerous, and often there are other subsistence users already using the area.
- Many people said that roads open up competition for subsistence users by providing access from ferries, and exposing the area to poaching.
- Some people pointed out that redcedar trees are unique ecologically and are of tremendous cultural importance to the people in Kake for customary and traditional subsistence use. They recommended that redcedar be protected for use only in traditional ways.

New Comments

- Some Kake residents pointed out that economic development needs to be promoted, and at the same time, traditional values and customs must be maintained. There are concerns about sustainable economic health of communities, and the sustainable, ecological health of the island and its resources. This is important because it adds up to quality of life.
- It was suggested that partnerships be developed to monitor cultural sites.

Aquatic Species and Watershed

Past Comments

- Many people told the Forest Service to protect all salmon streams, including tributaries, riparian areas, estuaries, and alluvial areas. Some people thought that agency protection measures were not adequate to protect fish stocks, and suggested larger streamside buffers. Some people felt that fish stocks are impacted by timber sale activities.
- A number of people said they were concerned about the viability of steelhead runs in Big John, Keku, and Tunehean Creeks and in Castle River, and that these streams needed to be protected.
- Some people suggested the Forest Service impose timing restrictions on the Little Hamilton Bay Log Transfer Facility to protect spawning herring.

- Portage Creek was said to have high fish values and needed protection.
- One person requested that the Forest Service prepare a plan for watershed restoration on impaired water bodies, and that timber harvest be delayed until watershed recovery was demonstrated.

New Comments

- Local fishers pointed out the importance of protecting fish and shellfish habitat around Kupreanof Island especially since commercial fishing is currently the principal economic interest in Petersburg. There were concerns about the amount and location of timber harvest and road building and their effects on streams, bays and estuaries. Some people said the Forest Service should adopt the recommendations from the Anadromous Fish Habitat Assessment. More protection of smaller streams and a 1,000-foot beach fringe is needed.
- Protecting the whale population from adverse impacts was a concern voiced by some people.

Transportation

Past Comments

- Many people said they didn't want the Forest Service to build a road connection between Kake and Petersburg. Many others said they want to see the road built.
- Many people commented that we need fewer roads and that roads are the most destructive part of timber harvest. Contrary to that opinion, some people thought road systems should be developed for increased opportunities for small sales and personal use timber.
- The White Alice Road and the Tonka Mountain log transfer facility were specifically mentioned as desirable for recreation and subsistence activities.
- Some people pointed out the need to develop a road management plan, and to do a better job of maintaining existing roads.

New Comments

- People expressed a variety of thoughts on log transfer facilities (LTFs). Some said LTFs should be built for barging, not log rafts, and that bark residues should be cleaned up at old LTFs. Conversely, it was pointed out that barging is a growth industry in southeast Alaska, but it is also expensive, and rafting logs should still be an option.
- Some people preferred no new LTFs, but if they are necessary, to locate them away from popular anchorages.
- It was pointed out that having fewer LTFs has drawbacks. Fewer LTFs may mean more road construction in order to access the existing LTFs. In addition, hauling logs from the south end of the island to the LTFs at Kake, about a two-hour trip, then six hours barging each load south to market would be expensive.
- Some people said roads should be maintained or closed.
- It was suggested by some people that helicopters be used for timber harvest instead of building new roads. Perhaps the Forest Service could subsidize helicopter logging instead of road construction. Helicopter logging would mean less impact from roads, plus the ability to use partial harvest methods.
- Some people do not want to see Kake connected to the east side of Kupreanof. They felt it would end the remote experience present now on Kupreanof Island and may lead to a ferry or bridge to Mitkof Island. On the other hand, some people commented that we should consider the needs of less mobile people who can't visit Kupreanof Island because there is no road access.

Comments Beyond the Scope of the Kupreanof Island Analysis

Some of the comments we received were broader than the management of the island itself, addressing a bigger picture such as national forest management. Other comments were about issues that are outside the control of the Forest Service. These issues would need to be pursued through other agencies or levels of government. The Forest Service may be a cooperator with these projects, but would not be the lead agency.

National Forest Management

- Some people would like more involvement in Forest Service planning, and suggested the public and environmental community be invited to Forest Service classes and workshops. Community members could participate in every facet of timber sale planning, not just in written comments.
- The Forest Service should devote more resources to researching intact forest ecosystems within the coastal temperate rain forest.
- A decision-making mechanism is needed that excludes political intervention and prioritizes biologically driven decisions.
- A few people felt that the forest must be managed with an awareness of world context and interrelationships. We need to realize that world population is growing, resources are limited, and world ecological integrity is diminishing
- People living and working on Kupreanof Island must work together as a group and with the Forest Service to figure out how to maintain the environment, economy and traditional uses. Kupreanof Island issues affect the lives of people, families and communities. Working together would build a sense of community.

Most people realized that Kupreanof Island is part of a *national* forest, and as such, interest groups nationwide should have an opportunity to help plan for future uses of the island. Some people felt that determinations about the island should be local, not national.

Economic Analysis

- Someone suggested an analysis of the current economic situation on Kupreanof Island. This would include the value of subsistence, mining, commercial fishing, tourism, cabin fees, and timber harvest. This would help establish long-term economic stability for Kupreanof Island.

Kake Powerline Intertie

- Kake residents stressed the importance of connecting Kake to the Tyee powerline. Cheaper electricity is essential for the development of value-added industries and the growth and economic stability of Kake. Kake could work with legislators, State officials, the Forest Service and the Thomas Bay Power Authority to fund and build the powerline.

Petersburg Creek Management

- There is concern about Petersburg Creek since the State gave land to the Mental Health Trust, which may plan to harvest timber there. Petersburg Creek provides an important view from Petersburg and Kupreanof. Several people suggested the Forest Service, or the cities of Petersburg or Kupreanof buy or trade for these Mental Health Trust lands
- Some felt the Petersburg Creek area needs a management strategy because of conflicting and competing uses.
- Many landowners and an increasing number of cabins are creating a water quality hazard. Recreation uses are sometimes at odds, with jet boats operating alongside canoes. Fisheries are seeing more demand. Increasing numbers of people in the area adversely impact wildlife. Some person or group needs to take the lead in managing this area.

Chapter 2

Landscape Patterns

Chapter 2 - Landscape Patterns

This chapter provides an overview of physical, biological, and social processes and interactions that shape Kupreanof Island. Five categories discussed are: 1) human use, 2) geology, 3) vegetation, 4) climate and hydrology, and 5) wildlife and fisheries. Map 1 (Landscape Patterns) shows general use trends and natural features on Kupreanof Island (see separate map packet).

Human Use Patterns

Kupreanof is the sixth largest island in Southeast Alaska and is located near the geographic center of the Alexander Archipelago, a group of mountainous islands lying west of the mainland. The island is approximately 1,089 square miles in size, with 313 miles of shoreline. The communities of Kake on the northwestern shore and Kupreanof on the eastern shore are the only two municipalities on the island. Permanent residences and summer cabins are located along Wrangell Narrows, Beecher Pass, and the east shore of Duncan Canal.

The patterns of human use on Kupreanof Island reflect where and how people live, work and play. Communities are coastal, and generally spread out along shorelines. Travel is primarily by water and the Kake road system, and to a lesser degree by small plane and foot trail.

The Kupreanof Island communities of Kake and Kupreanof, and the off-island communities of Petersburg, Point Baker, and Port Protection depend upon the resources of Kupreanof Island for subsistence, economic, social, and recreational activities. Recreation facilities, such as picnic sites and trails, attract people and influence where they go. Areas known for their subsistence values draw people to certain places on and around Kupreanof Island. More detailed information may be found in the subsistence, traditional values, and recreation sections of this analysis.

Kupreanof Island Communities

Kake - Kake is located on northwest Kupreanof Island, along Keku Strait. Tlingit Indians built villages and fishing camps in the Kake area in the early 1700's. During the 1800's these villages were consolidated at the present site of Kake.

Kake's major economic sectors are commercial fishing and seafood processing, and government services. Employment is highly seasonal. A timber industry began in 1968 and has been an important contributor to the economy of Kake until recently. Kake's forest products industry has relied upon the harvest of nearby timber resources from both private and National Forest lands.

The people of Kake mainly use the northwest end of Kupreanof, east along Frederick Sound to Portage Bay and south along Keku Strait and Rocky Pass for fishing, recreation, and subsistence. This contemporary use area derives from the traditional deer hunting territories of the Kake Tlingit (see subsistence section for more information).

Kupreanof - The City of Kupreanof is located on the east side of Kupreanof Island across the Wrangell Narrows from Petersburg, and was incorporated as a Second Class City in 1975. This settlement is economically tied to Petersburg, where most residents find employment, purchase goods, and attend school.

Before incorporation as a city, Kupreanof was referred to as West Petersburg. The first permanent residents in the area were proba-

bly homesteaders who established residency by 1902. During the 1920's, over 100 people resided in West Petersburg, which was at the center of Southeast Alaska's expanding fur farm industry. West Petersburg was the site of the first mink farm in Alaska. The peak of West Petersburg's development occurred between the mid 1940's and early 1950's. As the fur trade declined after World War II, the population of West Petersburg decreased from 60 in 1950 to 26 residents in 1960. The population has since remained stable.

Kupreanof's administration has taken a strong environmental stand. Motorized land vehicles have been banned, except under special permit. A very low rate of population growth has been encouraged, and development in the coastal zone has been discouraged.

The people of Kupreanof mainly use the northern portion of the Lindenberg Peninsula and Duncan Canal for fishing, recreation, and subsistence (see subsistence section for more information).

Nearby Communities

Petersburg - Petersburg is located on the northern tip of Mitkof Island across the Wrangell Narrows from Kupreanof Island. Its population is 3,400, which is a 66-percent increase since 1970.

Prior to Petersburg's development at the turn of the century, Tlingit use of the area occurred at many small settlements. The community of Petersburg was founded by Norwegian Peter Buschmann in 1899 and incorporated in 1906. More Norwegians followed and settled into a Scandinavian-style community. The town grew up around the Icy Strait Packing Company, started by Buschmann in 1900. Along with the evolution of the commercial fishing industry, a larger Tlingit community developed in the expanding town. This Alaska Native community has been a permanent and stable component of the town throughout its development. The Petersburg area served as a center for the blue fox industry until the 1960's. Small-scale gold mining in the 1930's and barite mining in the 1950's also contributed to Petersburg's economy. A growing timber industry further stimulated the local economy beginning in the 1960's.

Commercial fishing and seafood processing has been Petersburg's main economic sector for 100 years. The second largest employer is government. Other economic sectors include retail trade, construction, timber, and tourism.

The people of Petersburg use the eastern half of Kupreanof Island, including Duncan Canal, for fishing, recreation and subsistence.

Point Baker - Point Baker is located on the northern tip of Prince of Wales Island, just south of Kupreanof Island, and has a population of 50, which has fluctuated since the 1970's. Point Baker is not an incorporated city, nor is it within any other local government jurisdiction.

Commercial fishing at Point Baker began in the early 1900's, when the area was used as the site of a floating fish packer. Prior to that time, Tlingits used fish camps at Point Baker to participate in both customary trade and subsistence fishing.

The main economic sector is fishing. Most commercial fishermen are hand trollers, although a few are power trollers and gillnetters. A few retail and service businesses meet the basic needs of residents and commercial fishermen. Point Baker has one of the highest per capita subsistence harvests in Southeast Alaska (see subsistence section for more information).

Residents of Point Baker traditionally use the southern end of Kupreanof Island, in particular Totem Bay, and the southern half of Rocky Pass for fishing, subsistence and recreation.

Port Protection - Port Protection, population 50, is a small fishing community located at the northern tip of Prince of Wales Island. Like Point Baker, Port Protection is not an incorporated city, nor is it within any local government jurisdiction.

Prior to the development of a fish buying station, store and fuel dock in the early 1900's, Tlingits used the area for customary trade and subsistence fishing, as evidenced by stone and wooden stake fish weirs and traps, and shell middens.

During the 1970's, new residents acquired home sites in Port Protection under State of Alaska land disposal programs. There are no roads, although the nearby logging camp at Labouchere Bay is a roaded port. Skiffs are used for local travel, and there is a boat harbor and launch ramp. Residents travel to Point Baker for mail.

Port Protection is characterized by a seasonal cash economy based on commercial purse seine and troll fisheries, and by a subsistence way of life.

Residents of Port Protection use the southern end of Kupreanof Island and Rocky Pass for fishing, subsistence and recreation.

Geology

Complex geological processes have shaped Kupreanof Island, including faulting, metamorphism, plutonism, volcanism, and glaciation. Heavy glaciation has strongly influenced the topography and shape of Kupreanof Island. The entire island was once covered by thick ice as deep as 3,000 feet. A few mountain peaks in the vicinity of Missionary Range, including Portage Mountain, Petersburg Mountain, and Sherman Peak, escaped glaciation. The highest of these peaks is about 3,800 feet. These mountain pinnacles rise steeply above the more rounded terrain that was carved out by many glaciers. The most recent glacial period left small permanent icefields on the north sides of Sheridan and Sherman Peaks. Apart from these prominent features, much of the island has relatively low relief, consisting of rounded mountains and gently rolling lowlands.

Glacial deposits formed most of the parent materials for soils. These deposits buried the pre-glacial landscape from sea level up to 3,000 feet.

Marine terraces, such as the nearly level terrace around Bohemia Mountain and west toward Kake are found below 500 feet. These terraces are "glacio-marine" in origin, comprised of a glacial till deposited below sea level. When the weight of glacial ice lifted, land masses began to rise at a rate of about 1/4-inch per year. Parts of the island have risen as much as several hundred feet since the end of the glacial period.

The western third of Kupreanof Island is composed of sedimentary and volcanic rocks with concentrations of volcanic rock around Tunehean, Lovelace, and Kushneahin Creeks. The rocks on northwestern Kupreanof Island are metamorphic basalt and limestone overlying chert and tuff.

The central portion of the island is composed of metamorphic rock overlain by younger sedimentary rock and is highly mineralized in the Duncan Canal area. These mineral deposits and their host rocks are part of a 300-mile long belt of similar deposits that stretches from Juneau to Ketchikan.

Agates collected on a beach near Irish Creek

The eastern third of the island is a mixture of older metamorphic and younger plutonic rock (rock formed by magma). The young plutonic rocks of the Lindenberg Peninsula are made of hard quartz that resist weathering. The mountains here are steeper and higher than anywhere else on the island. Ambler and Kane Peaks, near Cape Strait, are part of a northwest-trending mountain range that extends from Ketchikan to Juneau. Plutonic and volcanic rocks rise up south of Duncan Creek in the central part of Lindenberg Peninsula forming a mountain backdrop visible from many viewpoints.

Another major group of geologic rock units on the Lindenberg Peninsula are part of the informally named Duncan Canal - Zarembo Island mineral resource tract. As of 1999, four companies or individuals owned about 630 valid mining claims on Lindenberg Peninsula and the area around Duncan Canal. Most of the work being done is exploratory consisting of geological mapping and drilling for core samples. Exploration work is conducted to determine the type and extent of mineralization as well as the economic viability of any deposits discovered. The types of minerals being sought include gold, silver, copper, lead, zinc, iron, and others. The economic potential of the mining claims has yet to be determined.

Kupreanof Island, like most of Southeast Alaska, is geologically diverse. The tremendous land-altering forces of plate tectonics and glaciation have acted upon bedrock of different ages and chemical compositions to produce a varied landscape. From rock hounding and mining to road building and forest management, the geology of Kupreanof Island sets the stage for a wide variety of human activities.

Vegetation

The vegetation on Kupreanof Island is a mosaic of mostly old-growth temperate rainforest and wetland plants. Second-growth forest resulting from timber harvest occurs along the road system and shorelines. Small areas of natural second-growth forest have developed after blowdown had occurred.

The forest consists of about 80 percent western hemlock with lesser amounts of Sitka spruce, mountain hemlock, Alaska yellow-cedar, and western redcedar. Most of the forests consist of a mix of tree sizes and ages, including some dead trees. Kupreanof Island is the northern range of western redcedar. Alder grows on exposed and disturbed soil sites such as old roads. Dense understory plants grow where enough sunlight can penetrate the forest canopy. Understory plants include devil's club, rusty menziesia, skunk cabbage, salmonberry, bunchberry, and many species of blueberries. The most productive forests develop on well-drained sites such as along the mountain slopes of the Missionary Range in the northeast, in the Petersburg-Duncan Salt Chuck Wilderness, in the Keku Creek and Big John drainages, and in the headwaters of the Castle River drainage.

Kupreanof Island has several large areas of muskeg. The southeast corner of the island and the north central area near the Bohemia Range are mostly muskeg savannas.

Muskeg vegetation is a mixture of sedges, deer cabbage, sphagnum mosses, and low-growing shrubs such as Labrador tea and bog laurel. Stunted, slow-growing shore pine grow on less saturated muskeg areas. Very small ponds dapple most muskegs.

Due to the low elevations of most Kupreanof Island, few areas of subalpine or alpine vegetation exist. The few mountaintops where this habitat is present are the Missionary Range, the Bohemia Range, Portage Mountain, and several ridges higher than 1,500 feet in the middle of the island. Plants that grow in subalpine and alpine areas are copperbush, sedges, cottongrass, mountain hemlock and several species of blueberries.

The plants in estuaries and along the beach fringe include red and Sitka alders, crabapple, sedges, and grasses. Heavily used estuaries and beach fringe areas on Kupreanof Island include the areas around Hamilton Bay, Totem Bay, Portage Bay, Kah Sheets Bay, Big John Bay, Duncan Canal, and the Wrangell Narrows.

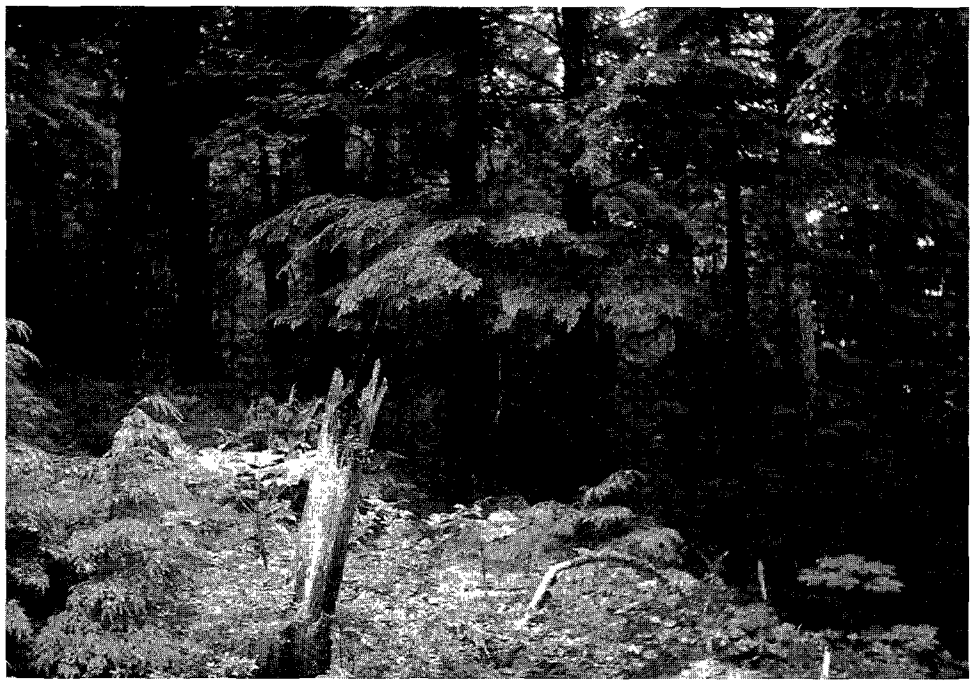
Climate and Hydrology

Temperature extremes in Southeast Alaska are moderated by warm ocean currents. Temperatures on Kupreanof Island range from an average of 27 degrees Fahrenheit in the winter to an average of 56 degrees Fahrenheit in the summer.

Precipitation is abundant due to moist maritime air masses that lift, cool, and condense over Southeast Alaska. Average annual precipitation measured near sea level ranges from 54 inches in Kake to 105 inches in Petersburg/Kupreanof. September through February are usually the wettest months and March through July the driest.

Heavy winds often accompany major winter storms. Trees blown down by the wind are the primary form of natural disturbance on Kupreanof Island.

Storms formed over the Pacific Ocean often cover large geographic areas and last for several days. Entire watersheds on Kupreanof Island may be shrouded by storms. Precipitation intensities are generally low to moderate. Watersheds are often saturated well before a storm ends. Once a watershed is saturated, the amount of runoff is directly tied to precipitation intensity. After the storm, high water flows last only a few hours before rapidly declining due to the relatively small size of the watersheds.



Vegetation on Kupreanof Island

Wildlife

The most common mammals on Kupreanof Island are black bear, Sitka black-tailed deer, beaver, porcupine, Alexander Archipelago wolf, red squirrel, marten, and moose. Many of the nearly 300 bird species known to occur in Southeast Alaska can be found on Kupreanof Island at one time or another.

Unconfirmed reports have indicated the presence of elk on Kupreanof Island. Elk were established on nearby Etolin Island in the 1970's, and individuals may have migrated to Kupreanof Island. A mountain lion was trapped on Kupreanof Island in 1998. Both of these species are incidental, and not expected to become established.

Black bear use a variety of habitats for foraging. They feed on seasonal berries and salmon in estuaries and along streams during salmon spawning runs.

Sitka black-tailed deer were historically abundant on Kupreanof Island, but a series of severe winters in the early 1970's substantially reduced the population. The deer population has been slowly recovering since then. Predation on deer by wolves and black bears has contributed to a slow rate of recovery of the Kupreanof Island deer population. During the summer months, deer use subalpine habitats, forested regions and tidal lowlands. In the winter months, cold and snow drives deer from the uplands down to lower elevation forests and tidal lowlands.

Animals naturally circulate throughout Kupreanof Island as well as disperse to other nearby islands. Edge habitats along streams are commonly used as travel corridors by many wildlife species. Map 1 shows key wildlife migration routes. These routes include: 1) the southern tip of the Lindenberg Peninsula across to Mitkof Island, 2) Rocky Pass to Kuiu Island; 3) east and west between Duncan Salt Chuck and Portage Bay; and 4) east and west between Duncan Canal and Rocky Pass.

Waterfowl migrate along two major north-south routes on Kupreanof Island. These are along Rocky Pass, and along Duncan Canal, continuing overland to Portage Bay.

Fisheries

Ninety-eight fish streams have been identified on Kupreanof Island. Steelhead and cutthroat trout, Dolly Varden char, and four species of Pacific salmon can be found in these streams. Major fish streams drain into marine waters on all sides of Kupreanof Island.

The largest watershed on Kupreanof Island is Hamilton Creek, over 46,700 acres. It drains into Hamilton Bay on the northwest coast of Kupreanof Island. The Castle River watershed, over 37,900 acres, drains into Duncan Canal. The third largest watershed, Irish Creek, drains into Keku Strait and contains about 29,800 acres. Altogether, twenty-two fish producing watersheds have areas of over 6,000 acres.

Fish streams on Kupreanof Island contribute to marine sport and commercial fisheries, as well as a freshwater sport fishery. Recreational and commercial fisheries are important to local economies, and their fish populations help meet the subsistence needs of local communities.

Chapter 3

Resource Information

Chapter 3 - Resource Information

This chapter explains the existing conditions on Kupreanof Island and lists current and possible projects by resource. This close look at the resources on the island helps formulate plans for the future.

Forest Plan Direction

The Tongass Land and Resource Management Plan, known as the Forest Plan, was completed in 1997, and modified with a new Record of Decision in 1999. The Forest Plan guides natural resource management activities by establishing goals, objectives, and management standards and guidelines. Goals are achieved by allocating land to 19 land use designations (LUDs), by implementing the standards and guidelines specified for the LUDs, and through projects and activities conducted on the Forest (see Map 2, Land Use Designations).

Standards and guidelines govern resource management activities and are key to successful implementation of the Forest Plan. These standards and guidelines take precedence over annual targets or project outputs. No project or program on Kupreanof Island would occur which cannot meet the applicable standards and guidelines.

This chapter summarizes Forest Plan management direction for the different resources. The box at the beginning of each resource section gives the Forest Plan goal and LUD standards and guidelines for that resource. This information guides us in developing appropriate activities on Kupreanof Island. Following the Forest Plan box is a discussion of the existing condition of the resource, that is, what is the situation on Kupreanof Island now. At the end of each resource section is a list of current and possible projects that respond to public needs and desires to implement the Forest Plan.

Laws Directing Resource Management on National Forests

Multiple-Use Sustained Yield Act of 1960

This act establishes the uses of national forest land for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. The Forest Service is directed to develop and administer the renewable surface resources for multiple use and sustained yield. Multiple use refers to making the best use of land for some or all of these resources or related services. Sustained yield means achievement and maintenance of regular uses of resources without impairment of land productivity.

National Environmental Policy Act of 1969

This act establishes regulations and procedures for Federal agencies to consider the environmental impacts of their actions. Documents such as environmental impact statements are prepared before projects begin.

National Forest Management Act of 1976

This act amended the Forest and Rangelands Renewable Resource Planning Act of 1974 by requiring land management plans, added more detailed policy regarding timber management, and increased public participation in Forest Service decision-making.

Land Use Designations on Kupreanof Island

Land use designations (LUDs) function similar to zoning regulations. They allow for certain types of activities to occur. Eleven land use designations apply to Kupreanof Island. These are: Wilderness, Special Interest Area, Remote Recreation, Municipal Watershed, Old-growth Habitat, Semi-Remote Recreation, Scenic River, Wild River, Scenic Viewshed, Modified Landscape, and Timber Production. Kupreanof Island also contains non-National Forest lands. In some cases, more than one LUD applies to the same area (such as a Wild River within a Wilderness). When an area has two LUD's assigned, the more restrictive management prescription is applied. On Kupreanof Island, this is the case for Petersburg Creek, which is recommended as a Wild River (Congress must make the final designation) and is within the Wilderness LUD (see Table 1).

LUD Management

The nineteen LUDs established in the Forest Plan can be divided into four groups with similar management direction and environmental effects, as the following table shows for the eleven LUDs found on Kupreanof Island. Each category includes LUDs that share similar standards and guidelines for a particular resource (see Table 2). For example, in the box at the beginning of the Timber Management section in this chapter, you will see that eight LUDs are unsuitable for timber production. All of these LUDs fit into the "mostly natural" category, and share essentially the same management direction for timber.

Table 1. Land Use Designations On Kupreanof Island

Land Use Designation	Acres
Non-national Forest Lands	60,000
Wilderness	44,000
Special Interest Area	80
Remote Recreation	24,000
Municipal Watershed	800
Old-growth Habitat	97,000
Semi-remote Recreation	113,000
Scenic Viewshed	28,000
Modified Landscape	29,000
Timber Production	280,000
Wild River	44 (miles)
Scenic River	4 (miles)

Table 2. LUD Categories with Similar Management Direction

Nondevelopment LUDs		Development LUDs	
Natural	Mostly Natural	Moderate Development	Intensive Development
Wilderness	Old-growth Habitat Remote Recreation Semi-Remote Recreation Municipal Watershed Special Interest Area Wild River Scenic River	Scenic Viewshed Modified Landscape	Timber Production
(44,000 acres)	(234,880 acres & 48 river miles)	(57,000 acres)	(280,000 acres)

Non-National Forest Lands on Kupreanof Island

Approximately 60,000 acres or about 9 percent of Kupreanof Island is non-national forest land under municipal, state, or private ownership. Forest Plan direction does not apply to these lands. However, to be meaningful, an island-wide ecosystem analysis must include a look at all land uses on the island.

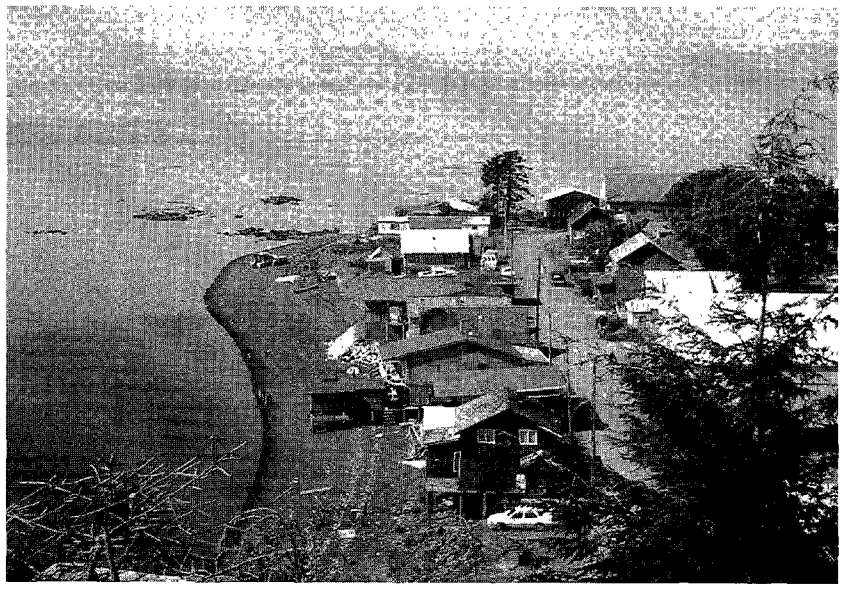
1,746 acres are in the municipal boundaries of the City of Kupreanof. This includes only the portion of the City that is located on Kupreanof Island and not the surrounding islands that are included in the municipal boundaries. It includes lands owned by the City of Kupreanof, the State of Alaska, and private landowners.

4,511 acres are included within the City of Kake. This includes only the portion of Kake that is located on Kupreanof Island and not the surrounding islands that are included in the municipal boundaries. It includes lands owned by the City of Kake, the State of Alaska, Kake Tribal Corporation, National Forest lands (173 acres), and private landowners.

Alaska Statehood Act of 1958: 8,490 acres have been conveyed to the State of Alaska outside the boundaries of Kupreanof and Kake. Much of this acreage is in Mental Health land ownership, which is used to provide revenue to support the Mental Health Trust. Another 1,764 acres outside the municipalities have been selected by the State of Alaska, and are likely to be conveyed in the future.

The Alaska Native Claims Settlement Act of 1971: 44,464 acres outside of Kake have been conveyed to the Kake Tribal Corporation under the authority of the Alaska Native Claims Settlement Act. An additional 80 acres have been selected under this Act and are likely to be conveyed in the future.

Non-national forest lands on Kupreanof Island that are not included in the above categories total 177 acres. In total, approximately 60,000 acres on Kupreanof Island are Non-national Forest lands. These lands often have a very different management focus than national forest, state, and municipal lands.



City of Kake on Kupreanof Island

Fish, Soil, and Water Resources

Forest Plan Fish Goal:
"Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms." (Forest Plan 2-2)

Forest Plan Land Use Designation Standards & Guidelines for Fish:

Wilderness (Forest Plan 3-10) Plan for fisheries consistent with ANILCA, Section 1315(b) which recognizes the goal of restoring and maintaining fish production in the State of Alaska to optimum sustained yield levels and in a manner which adequately assures protection, preservation, enhancement, and rehabilitation of the wilderness resource.

Remote Recreation (Forest Plan 3-65) Evaluate fish habitat improvement during project planning by considering: 1) effects resulting from the introduction of species not indigenous to the watershed; 2) the appropriateness of structures both in type and scale to the Primitive Recreation Opportunity Spectrum (ROS) setting; and 3) the need to provide well distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.

Municipal Watershed (Forest Plan 3-71) Plan the construction and maintenance of fish improvement projects only if they are compatible with the municipal watershed objectives.

Old-growth Habitat (Forest Plan 3-78) Emphasize the protection and restoration of fish habitat, fish production, and aquatic biodiversity. Enhancement projects that may change the natural distribution of fish species within a watershed are consistent with Land Use Designation objectives.

Semi-Remote Recreation (Forest Plan 3-83) Fish enhancement improvement may occur.

Wild River (Forest Plan 3-98) Fish enhancement projects may be allowed if the primitive character of the area and the outstandingly remarkable values for which the river was designated can be maintained.

Scenic River (Forest Plan 3-106) During project planning, evaluate fish habitat improvement for its effects on the outstandingly remarkable values for which the river was designated. Provide for public interpretation of fish habitat, habitat enhancement projects, and special fisheries conditions.

Scenic Viewshed (Forest Plan 3-129) Meet the Visual Quality Objectives in the design and construction of fish habitat improvements and aquaculture facilities.

Timber Production (Forest Plan 3-145) and **Modified Landscape** (Forest Plan 3-135) Fisheries projects are allowed. Follow Forest-wide Standards & Guidelines (Forest Plan 4-8) for fish.

Forest Plan Soil and Water Goal:

"Maintain soil productivity Forest-wide and minimize soil erosion resulting from land-disturbing activities. Minimize sediment transported to streams from land-disturbing activities. Maintain and restore the biological, physical, and chemical integrity of Tongass National Forest waters." (Forest Plan 2-4)

Forest Plan Land Use Designation Standards and Guidelines for Soil and Water:

Wilderness (Forest Plan 3-18): Soil and water improvements can be undertaken only where deteriorated soil and hydrologic conditions caused by humans or their influences create a threat or loss of wilderness values or where such conditions could cause serious depreciation of important environmental qualities outside of the Wilderness.

Remote Recreation (Forest Plan 3-68) Watersheds will be managed in a natural condition.

Municipal Watershed (Forest Plan 3-74) Soil and water improvement may occur. Comply with the State of Alaska's Drinking Water Regulations and Water Quality Standards for water supply.

Old-growth Habitat (Forest Plan 3-80): Undertake watershed improvements only where deteriorated soil and hydrologic conditions create a threat to the goals and objectives for which the old-growth habitat is managed.

Semi-Remote Recreation (Forest Plan 3-84) Soil and water improvement may occur. Protect or improve water quality and sustain soil productivity. Follow Forest-wide Standards & Guidelines (Forest Plan 4-83) for Soil and Water.

Wild River (Forest Plan 3-102) and **Scenic River** (Forest Plan 3-110) Undertake watershed improvements within 1/4 mile each side of the river only where deteriorated soil or hydrologic conditions create a threat to the values for which the river is managed.

Scenic Viewshed (Forest Plan 3-132), **Modified Landscape** (Forest Plan 3-141) and **Timber Production** (Forest Plan 3-148): Insure the recognition, proper consideration, and protection on the sale area of high hazard soils, riparian, and other sensitive areas.

Fisheries

Kupreanof Island is an important contributor to the sport, commercial, and subsistence fisheries in Southeast Alaska. Streams on the island support large populations of pink, coho, chum, and sockeye salmon; steelhead trout; and Dolly Varden char.

The Alaska Department of Fish and Game (ADF&G) has identified 98 streams on Kupreanof Island that contain anadromous fish, 26 of which are considered major streams. Each major stream is comprised of one or more sub-watersheds, depending on the size and location of the stream. The following table has information about each of the major streams on the island. Local watershed names have been used when available. Map 3 shows the streams on Kupreanof Island, watershed boundaries for anadromous streams, and the stream name of each of the major watersheds. Smaller unnamed watersheds have been numbered for reference with the text.

Fisheries Management

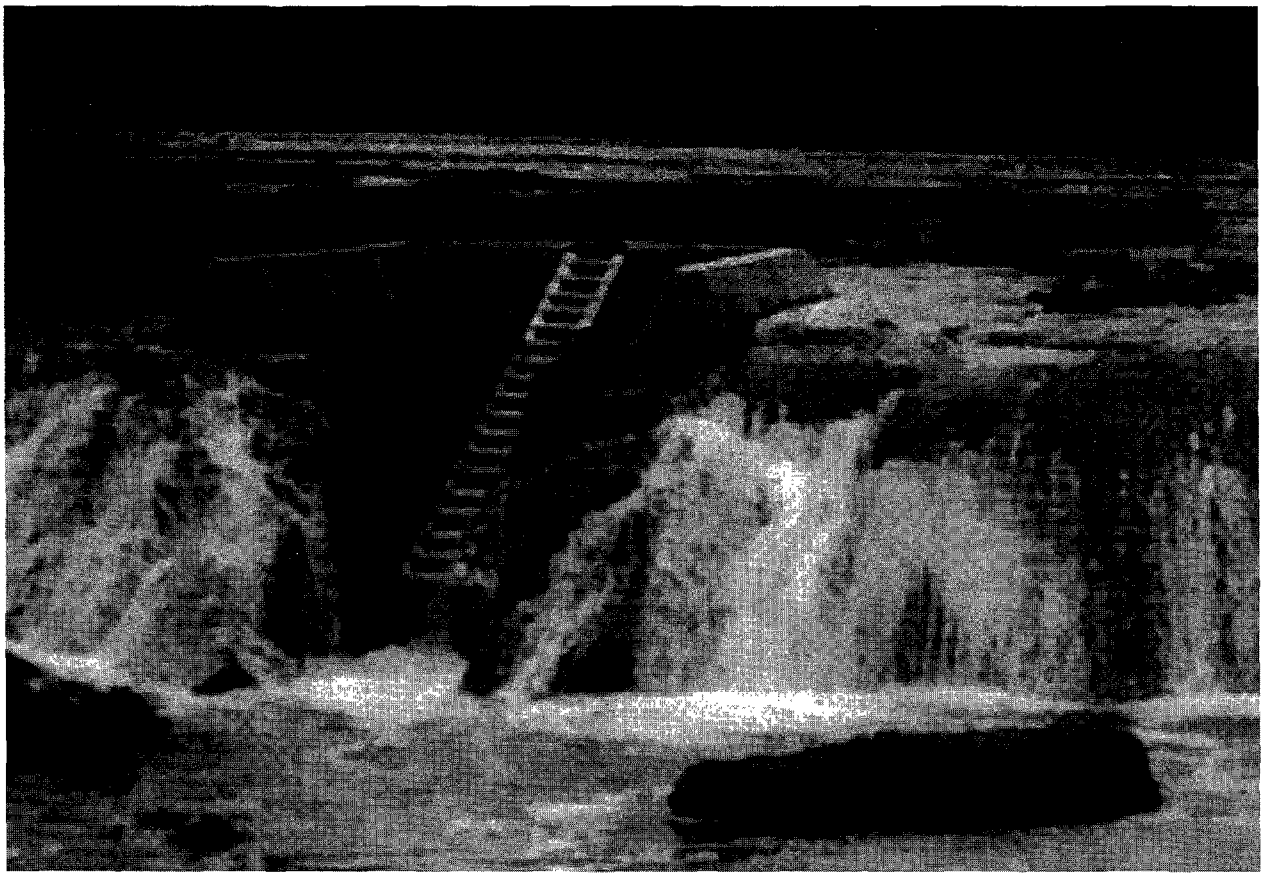
The Forest Service in cooperation with ADF&G and Gunnuk Creek Hatchery has significantly expanded anadromous fish habitat by building fish ladders and modifying small waterfall barriers. Fish habitat has

been expanded in Portage, Duncan, Mitchell, and Irish/Keku Creeks. A total 118 miles of additional anadromous fish habitat has been opened. Wire tag harvest data indicates that the additional habitat on Irish/Keku Creek alone contributed 32,000 coho salmon in 1991 and 13,000 fish in 1992 to the commercial catch.

The Tongass Timber Reform Act mandates a minimum 100-foot wide, no-harvest buffer on both sides of anadromous streams, and on resident fish streams that flow directly into anadromous streams. The Forest Plan Riparian Standards and Guidelines provide further direction for protection of the streams. Only after an additional watershed analysis can the riparian buffers deviate from the Standards and Guidelines as presented in the Forest Plan.

Table 3. Major Stream Miles and Watershed Area on Kupreanof Island

Stream Name	Total Stream Miles	Total Watershed Area (Acres)
Coho Creek	3.19	1,146
Colorado Creek	14.08	3,545
Taylor Creek	14.30	4,297
Five Mile Creek	10.67	4,676
Todahl Creek	23.54	5,814
Twelve Mile Creek	22.33	6,408
Lovelace Creek	32.12	8,786
Middle Creek	17.05	9,565
Kah Sheets	39.60	10,818
Kushneahin Creek	38.72	11,590
Big John Creek	40.59	12,666
Duncan Creek	55.99	12,979
Mitchell Creek	42.46	13,675
Totem Creek	32.12	14,456
Kluane Creek	52.58	14,826
Big Creek	58.74	15,518
Cathedral Falls Creek	47.74	16,897
Zim Creek	49.17	17,897
Towers Arm Creek	62.37	18,391
Portage Creek	51.92	18,769
Duncan Salt Chuck Creek	76.56	23,045
Tunehean Creek	71.61	23,810
Petersburg Creek	103.95	26,146
Irish/Keku Creek	94.49	29,778
Castle River	81.18	37,910
Hamilton Creek	123.97	46,774



Keku Creek Fish ladder

Watersheds

Watershed information such as size, amount of harvest, miles of road, soil type, and stream classification is stored in the geographic information system (GIS), a computerized database and mapping system. This information is used to indicate which watersheds may be most affected by future management activities. We looked at all anadromous watersheds on Kupreanof Island. The information can be used to help focus project planners on areas that may need detailed field investigation.

Timber Harvest and Watersheds

Timber harvesting within watersheds has been shown to increase the likelihood of altering the hydrology. In general, the greater the reduction in tree cover, the greater the increase in streamflow. Harvest of less than 20 percent of the cover generally results in little or no change in water yields. The Forest Plan presents a threshold value of 20 percent of a watershed harvested within 30 years. Beyond this level, further watershed analysis may be appropriate before additional harvest is conducted. Four fish-bearing watersheds on National Forest lands have had more than 20 percent of their areas harvested in the last 30 years (see Table 4). These watersheds are relatively small, ranging between 479 and 1911 acres. These watersheds are numbered and shown on Map 3.

Table 4. Watersheds Over the 20% in 30 Years Harvest Threshold

Watershed	Total Acres	% Harvest
1	1,911	21.21
2	838	29.24
3	871	20.41
4	479	20.06

Three watersheds on Kupreanof Island have harvest levels between 10 and 20 percent (see Table 5). All other watersheds on National Forest Lands on Kupreanof Island have less than 10 percent of the total watershed harvested.

Table 5. Watersheds Close to the 20% in 30 Years Harvest Threshold

Watershed	Total Acres	% Harvest
6	1,161	11.99
7	86	10.94
8	4,980	11.89

Gunnuk Creek is the site of a fish hatchery and is the municipal water supply for the Village of Kake. Sealaska Regional Corporation and Kake Village Corporation own most of this 9,400-acre watershed. About 800 acres of headwaters are part of the Tongass National Forest. In total, about 30 percent of this watershed is harvested. It is unknown if there are any water quality or fish habitat impairments due to the level of harvest within this watershed.

Roads and Watersheds

Road construction probably has the greatest potential of any management activity to affect water quality. Implementation of Best Management Practices (BMPs), standards and guidelines during construction and maintenance is expected to minimize adverse impacts. Impacts from roads are extremely difficult to quantify, however, so two broad measures are used: road density and stream crossings.

Road densities (the linear miles of road divided by the square miles of area within the watershed) can be used as a measure of potential impact to water quality. Watersheds with higher open road densities may be more likely to have erosion and water quality degradation, but it should be understood that road density may be a poor indicator of erosion or water quality degradation. One mile of poorly constructed or poorly maintained road may cause more negative impacts than many miles of properly constructed and maintained road. In general, the rock roads constructed on Kupreanof Island have much less water quality impacts than those roads constructed with native material in other national forests.

Twelve watersheds were found to have higher open road densities and may require further analysis before further ground disturbing actions take place within these watersheds. Watersheds with higher road densities on Kupreanof Island are shown in Table 6.

Table 6. Watersheds with High Road Density

Watershed	Total Acres	Road Density
1	1,911	1.88
2	838	1.98
3	871	2.13
5	1,749	0.73
6	1,161	0.94
7	1,309	1.81
8	4,979	0.85
9	363	1.06
10	8,819	1.07
11	648	0.89
12	2,700	1.09
Mitchell Ck.	13,675	0.90

The number of times roads cross streams in a watershed can be expressed as the number of stream crossings per square mile of watershed area. Research has shown that there can be a correlation between the number of stream crossings and the amount of sediment found in the streambed farther downstream. Five watersheds have more than 1.5 crossings per square mile and may require further analysis before additional disturbance occurs in these watersheds (see Table 7 and Maps 3 and 5).

Table 7. Road Stream Crossing Density

Watershed	Total Acres	Crossing Density
9	362	1.76
15	875	2.19
Todahl Ck.	5,813	4.62
Mitchell Ck.	13,675	1.97
Duncan Ck	12,979	1.73

A road inventory that identifies specific problem areas in need of correction was completed in 1999 for all of Kupreanof Island. This inventory shows areas with restoration needs that are incorporated into the road maintenance plan.

Landslides and Soil

Forest Management activities can cause soil erosion and subsequent loss of site productivity through the exposure of mineral soil, alteration of subsurface drainage, and the concentration of soil and rock material at unstable sites. Blowdown or windthrow may increase the potential for soil erosion, and may increase the potential for landslides.

Landslides are the dominant slope formation process in Southeast Alaska. Three quarters of all failures are on hillslope gradients of 34 degrees (68 percent slope) or greater and 86 percent develop on warmer, southerly aspects.

Hazard Class IV soils are those soil types considered most likely to be prone to mass movement (primarily debris torrents). These soil types were taken out of the tentatively suitable land base used to determine which areas are suitable for timber production during the development of the Tongass Land and Resource Management Plan, 1997. Areas with large percentages of Soil Hazard Class IV can indicate the need for careful evaluation before any ground-disturbing activity is conducted.

The Forest GIS database indicates that six watersheds on Kupreanof Island, totaling 43,299 acres, have the highest risk of landslides (see Table 8). All of these watersheds have more than 20 percent of their areas in Soil Hazard Class IV, the highest hazard class.

Table 8. Watersheds with High Potential Risk of Mass Movement

Watershed	Acres	Percent Class IV Soil
Unnamed watershed flows to Duncan Canal	4,979	25.35
Bohemia Mountain	2,850	21.15
Duncan Peaks	1,777	33.15
McDonald Arm	2,871	23.34
Petersburg Ck.	26,146	31.31
Five Mile Ck.	4,676	38.58

The level of potential future land use varies by watershed. Petersburg Creek and McDonald Arm watersheds are Wilderness Areas, and will have little development. The Forest Plan designates Duncan Peak as Semi-Remote Recreation, Five Mile Creek as Scenic Viewshed, the unnamed creek as Modified Landscape, and Bohemia Mountain as Timber Production areas. Future management activities in these watersheds will require intensive field investigation to determine site-specific slope stability.

Summary

The watersheds identified by this analysis may be more likely than other watersheds on Kupreanof to have unstable natural conditions. These conditions may make them more sensitive to future disturbance. Site-specific investigation during project analysis will be needed to better determine the actual level of risk.

Current Fish, Soil, and Water Projects

- Continue Road Condition Surveys on all roads on Kupreanof Island.
- Conduct National Fish Week fishing derby at Kake.
- Monitor active roads and correct problems as funding becomes available.
- Complete Barrier Modification on three Barriers on Duncan Creek.
- Stock Duncan Creek with coho salmon.
- Fish passes are monitored annually for any problems with fish passage.

Possible Fish, Soil, and Water Projects on National Forest Lands

- Fertilize Kushneahin Lake to enhance sockeye salmon production.
- A stream within a clearcut harvested in the 1980's located northeast of Mitchell Slough is devoid of large woody debris. Placing wood in this channel would create fish habitat where none presently exists.
- Construct a fishpass at Towers Creek.
- Fertilize Kah Sheets Lake to enhance sockeye salmon production.
- Inventory and rehabilitate Road 6325 (known locally as the "White Alice Road"). This road may be reopened in the future for recreational vehicle traffic.
- A landslide inventory is being planned for the entire island.
- Storm proof Roads 6334 and 6352.
- Inventory slides on the Little Hamilton River for possible rehabilitation work.
- Monitor Road 45601 for possible water quality problems.
- Monitor the Kah Sheets Lake landslides for possible water quality problems.
- Monitor the Castle River Trail for water quality.
- Monitor the Petersburg Creek landslides.
- Identify slides within harvest units and take action to revegetate them.
- Identify clearcut harvest units where woody debris was cleaned out of streams. Evaluate these units and streams to determine if large wood should be placed back into the channels.
- Identify roads to be taken off the maintained road system. Recondition them for storage by removing culverts and bridges, adding water bars, and revegetating.
- Inventory areas of volcaniclastic rock on the southwestern portion of the island and monitor them for erosion.
- Several large debris torrents have entered Todahl Creek over the past several years. Inventory work is needed to determine if there are restoration needs within this watershed.
- Gunnuk Creek is largely on Kake Tribal Corporation and Sealaska Corporation lands, with some national forest lands. The Forest Service would work cooperatively with other land owners and the City of Kake to develop a restoration and management plan for the watershed. Restoration in this watershed would be high priority since it is a municipal water supply and the location of a fish hatchery.

Heritage Resources and Traditional Customs

Forest Plan Heritage Resources Goal:
"Identify, evaluate, preserve, and protect heritage resources." (Forest Plan 2-3)

Forest Plan Land Use Designation Standards & Guidelines for Heritage Resources:

Wilderness (Forest Plan 3-11) Heritage Resources are available for scientific study to the extent that the study is consistent with: 1) the preservation of Wilderness 2) the intent of the Wilderness Act; and, 3) heritage resource management objectives.

Remote Recreation (Forest Plan 3-66) Heritage Resources are available for recreational, scenic, scientific, educational, conservation, and historic use.

Municipal Watershed (Forest Plan 3-72), **Old-growth Habitat** (Forest Plan 3-78): Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.

Semi-Remote Recreation (Forest Plan 3-85) Heritage Resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.

Wild River (Forest Plan 3-99) Heritage Resources are available for scientific study to the extent that the study is consistent with the intent of the Wild and Scenic Rivers Act. Heritage Resources are available for recreational, scenic, scientific, educational, conservation, and historic uses consistent with Wild River management.

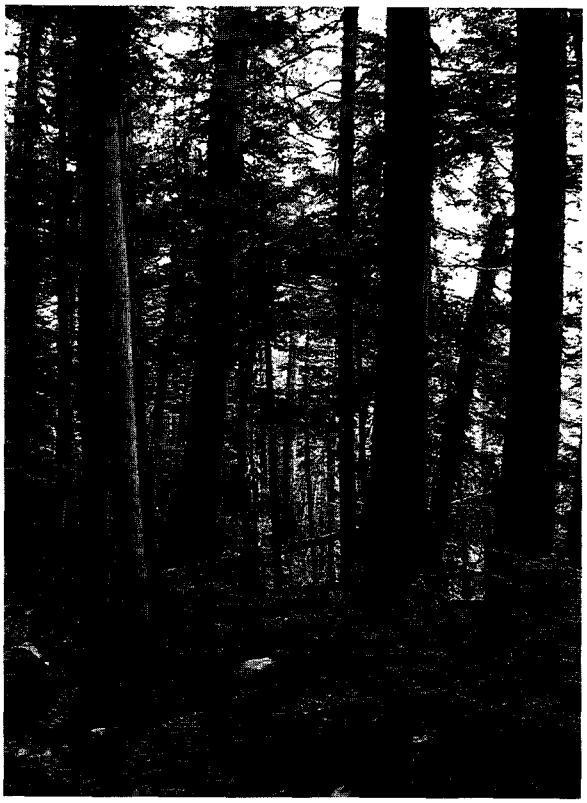
Scenic River (Forest Plan 3-107) Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.

Scenic Viewshed (Forest Plan 3-129), **Modified Landscape** (Forest Plan 3-138), and **Timber Production** (Forest Plan 3-154): Provide heritage resources assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring, and protection of Heritage Resources during activities.

Heritage Resource Program

A heritage resource is defined as an historic or traditional cultural property, an ancient or historically significant object that possesses integrity of location, or an area where historic properties abound, such as an historic district in a town or city. An historic property can date to either historic or prehistoric times and has significance in American history, architecture, archaeology, engineering or culture. A traditional cultural property is an historic property whose significance is derived from the role the property plays in a community's historically rooted beliefs, custom and practices.

Our Heritage Program goals include identifying, evaluating, preserving and protecting the heritage resources that exist on National Forest System lands. In addition, Forest Plan standards and guidelines make heritage resources available for recreational, scenic, scientific, educational, conservation and historic uses in accordance with the Historic Preservation Law. The sacred and nonrenewable nature of some sites regulates information dispersal.



Traditional bark harvest from redcedar trees

Historic Preservation Management

Legislation, regulations and guidelines are used to implement historic preservation policies and requirements under the National Historic Preservation Act. All project proposals within any Forest Plan land use designation (LUD) require inventory, evaluation, assessment, monitoring and protection of heritage resources. The Forest Plan also addresses the need for heritage resource inventory, evaluation, protection and interpretation for some areas of nondevelopment LUDs, even when projects are not planned. The State Historic Preservation Officer reviews and comments on all heritage work required under NEPA.

Kupreanof Island Heritage Resources

Over the past few decades, archaeologists have conducted numerous and extensive archaeological investigations on Kupreanof Island. Though not always obvious, cultural resources are abundant and diverse on the island. These investigations include background searches of historical and archival documentation, archaeological survey, ethnographic study and tribal consultation. Through these avenues we discovered and documented hundreds of archaeological sites. Types of sites found on the island include cabins, shelters, mines, fur farms, canneries, cemeteries, culturally modified trees, ancient fish traps, petroglyphs, Native villages, forts and seasonal camps. Most sites are along the coast where people, past and present, tend to live and subsist. Past use appears concentrated in the island's bays and along the shores of protected and narrow waters.

Fish streams and other subsistence resources like shellfish, cedar stands, mineral outcrops and berry patches have drawn people for millennia. The oldest dated archaeological site on Kupreanof yielded a radiocarbon age of 3820 +/- 140 B.P. (Before Present). According to Tlingit legend, people have been calling Kupreanof home for time immemorial. Peoples belonging to the Kakewan and Stikinekwan Tlingit have traditionally occupied the island. More recent historic activities such as fish processing, trapping, mining and fur farming have also left their mark in the form of historic sites.

Traditional customs and historic use often take place in the form of hunting and gathering traditional foods and gathering materials used in the manufacture of traditional goods. The Forest Plan addresses hunting and food gathering under subsistence standards and guidelines. Traditional goods fall under the heritage resources standards and guidelines. Kake residents often gather materials for traditional goods. A variety of plants are collected for medicinal and spiritual purposes. Cedar is a main resource and is used for carving and basketry. The Forest Plan has set aside North Hamilton River Redcedar Special Interest Area for subsistence and cultural uses. This 80-acre redcedar grove is the only redcedar in the immediate area that is easily accessible.

Heritage Resource Activities and Education Opportunities

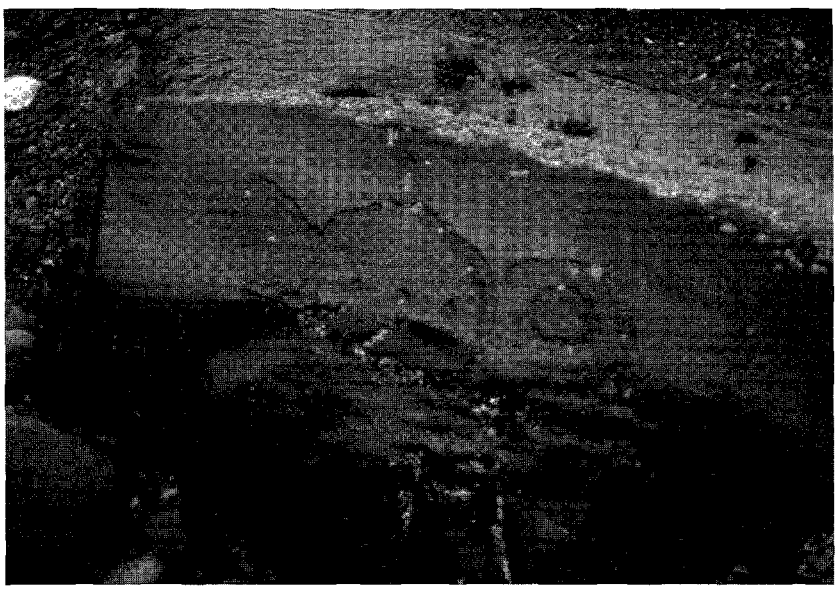
Under Forest Plan guidelines and in accordance with the National Historic Preservation Act, the Forest Service participates in activities and education opportunities in Kupreanof Island communities. The current projects list shows the educational projects we do.

Current Projects

- Most years, the Forest Service organizes an archaeology fair in Kake that includes a heritage children's fair at the elementary school, a round table discussion at the Senior Center, archaeology slide shows for schools and community. This year (year 2000) we showed school children how to make stone tools, throw an atlatl, and design an ancient fish trap.
- Forest Service resource specialists participate in the annual Kake Culture Camp.
- We hold informal and formal heritage discussions with the Organized Village of Kake.
- We are currently working on developing a site stewardship program in collaboration with the Organized Village of Kake and the community of Kake. This involves information sharing, tribal consultation, field trips and site monitoring.
- We have also worked on documenting the Kupreanof Cemetery northeast of the City of Kupreanof.
- We organized and held a Passports In Time volunteer project that focused on testing and analyzing a prehistoric Native village at Portage Bay.

Possible Projects

- Continued work on the Kupreanof Cemetery.
- Assist in revamping an historic Civilian Conservation Corps shelter on the island.
- Produce a site stewardship brochure pertaining to ancient fish traps.
- Future 'Passport in Time projects may focus on inventory, monitoring or continued research at Portage Bay.



Petroglyph on Kupreanof Island

Recreation and Tourism

Forest Plan Recreation and Tourism Goal:

"Provide a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to tourism." (Forest Plan 2-3)

Forest Plan Land Use Designation Standards and Guidelines for Recreation and Tourism:

Wilderness (Forest Plan 3-16) and **Wild River** (Forest Plan 3-96): Provide a variety of wildland recreation opportunities that offer a high probability of experiencing solitude, freedom, closeness to nature, tranquility, self-reliance, challenge and risk. Trails, existing recreation cabins, and primitive facilities that are in harmony with the natural environment are allowed.

Remote Recreation (Forest Plan 3-67): Provide opportunities to experience independence, closeness to nature, solitude and remoteness. Recreation facilities are minimal and rustic.

Municipal Watershed (Forest Plan 3-73) Recreation developments are discouraged, but may be authorized on a case-by-case basis in consultation with the municipality.

Old-growth Habitat (Forest Plan 3-80) Recreation and tourism uses and facilities should be compatible with the habitat needs of old-growth associated species. Developments are generally small.

Semi-Remote Recreation (Forest Plan 3-87): Provide opportunities to experience a moderate degree of independence, solitude and remoteness. Some areas may be managed for motorized use such as riding snowmobiles. Small-scale, rustic recreation and tourism facilities are permitted, with an occasional enclave of concentrated development.

Scenic River (Forest Plan 3-104): Provide opportunities for recreation and tourism experiences ranging from primitive to those in a modified setting. Small recreation developments are fully compatible, and large developments, such as campgrounds and lodges, are allowed.

Scenic Viewshed (Forest Plan-126) and **Modified Landscape** (Forest Plan 3-135): Provide a variety of recreation and tourism opportunities, from semi-primitive to road-based experiences. Small and large recreation developments are compatible.

Timber Production (Forest Plan 3-144) Provide a variety of recreation and tourism opportunities that are managed to be compatible with timber harvest. An extensive road system is usually present that provides access for recreation uses. Small and large recreation developments may be compatible on a case-by-case basis.

Refer to Forest-wide Recreation and Tourism Standards & Guidelines (Forest Plan 4-39 to 4-40) for details on the amounts and types of recreation and tourism developments allowed in each land use designation.

National Forest lands provide opportunities for many types of outdoor recreation experiences that range from very primitive experiences like backcountry hiking to more developed experiences like staying in a Forest Service cabin or campground. The idea is to provide for a wide range of recreation activities on the forest to meet a wide range of needs. To see if we are indeed providing a wide range of recreation opportunities, we need to understand where people go and what they are doing on the forest, or in this case, on Kupreanof Island. It's important to know what attracts people to an area. Then we can identify opportunities to enhance existing recreation, and provide additional recreational activities and opportunities to meet demand.

Tourism is a major industry in Southeast Alaska, and the National Forest is closely tied to tourism. Scenery and wildlife are primary reasons people visit the area. The forest provides the backdrop as well as the land base for many tourism activities. The size and extent of the forest has a profound influence on the amount and nature of opportunities for the tourism industry.

In some places, the Forest Plan guides the types of activities that can occur. For example, Wilderness areas in Alaska allow only traditional and customary uses which means very limited motorized use. Wilderness Areas are designed to protect and perpetuate natural conditions and processes; and provide opportunities for solitude and primitive recreation.

On the forest and on Kupreanof Island, we want to provide a broad spectrum of recreation opportunities for local residents and visitors. To do this, we examine what is happening out there now, so we can see where we might to go in the future. We look at:

- Where people go and what they do,
- Where there are developed facilities like cabins and trails,
- Where there are roads for access,
- Where there are not roads and trails for access, and
- Where there are attractions like lakes, good fishing, anchorages, great scenery, and good hunting.

Recreation on Kupreanof Island

As with most areas of Southeast Alaska, recreation use on Kupreanof Island depends on access. Much of the land is remote and difficult to access. Areas used most for recreation are those that can be easily reached, which are primarily shorelines and places near roads. Areas that are accessible only by floatplane or trails, such as lakes, are used to a lesser degree. Areas of the island's interior that can only be reached by cross-country hiking are used even less.

Most road-based recreation users come from Kake. Roads lead from Kake to the northeast corner of the island, and south more than halfway down the island. People use the road system for hiking, hunting, fishing, picnicking, wildlife viewing, berry picking, and driving for pleasure. For most people, the presence of the road system is seen as a positive factor for quality of life in Kake.

More and more people are using the Tonka log transfer facility to access the Tonka road system on the Lindenberg Peninsula. The heaviest use is during deer season, but the roads are also used for grouse hunting, fishing, mountain biking, and cross-country skiing.

Use of shoreline areas occurs around the island, with most use occurring in Duncan Canal, Petersburg Creek, and Rocky Pass. Many shoreline users originate from Petersburg, especially those using the east side of the island. Shoreline activities include kayaking, camping, picnicking, hunting, beach combing, scenery viewing, and staying at recreation cabins.

Recreation developments on Kupreanof Island are rustic and small-scale. Cabins, trails and picnic sites have been developed along the shoreline and road systems. These types

of facilities serve users who prefer remote experiences and little contact with others. There are no highly developed sites or areas of concentrated use outside of city limits.

Some people prefer to use undeveloped areas of Kupreanof Island for their recreation pursuits. Camping, hunting hiking, beach combing, and watching wildlife occur all over the island, usually along shorelines or roads, and need no facilities. Undeveloped areas are important for some boat-based guides whose businesses depend on wild places.

Recreation Use Trends

Overall, recreation use and tourism in Southeast Alaska are increasing. When looking specifically at Kupreanof Island, however, the trend is less clear.

The Alaska Marine Highway ferry system has experienced increasing traffic in the last ten years. The only ferry stop on Kupreanof Island is at Kake. Tourists arriving in Petersburg may access Kupreanof Island by other means. It is difficult to estimate how many people who stop in Petersburg on the ferry eventually spend some time on Kupreanof Island, but it is likely the numbers have increased over the last ten years. The State's Southeast Alaska Transportation Plan considered options for Kupreanof Island, and concluded that the ferry service will not change from current service.

Historically, Kake has not been a well-known destination spot for out-of-state travelers. Many people in Kake are trying to change that by marketing Kake's Tlingit culture and heritage. The summer of 1999 was the second year that Kake Tribal Corporation agreed to provide tours of Kake for two cruise ship companies. Two small cruise ships each stopped in town one to two times a week. One ship carried up to 50 passengers and stayed in town for about four hours and the other ship carried 22 passengers with a stay of three hours. The passengers got an orientation to the Tlingit culture as well as a tour of town. Future ideas for expanding tourism in Kake include building a dock suitable for larger cruise ships.

The larger mainline ferries do not stop in Kake and the smaller ferries only stop once or twice a week. This may discourage some tourists from seeking it out. However, the Kake road system accessing the interior parts of Kupreanof Island may attract people with vehicles on the ferry. This could apply to state residents, as well as tourists from other places.

Cruise ship traffic is increasing in Southeast Alaska, along with other types of recreation and tourism. Cruise ship tourism has had little effect on Kupreanof Island, because there are no facilities for large cruise ships to dock. A small tour boat (20- to 30-passenger) stops in Kake occasionally. One small cruise ship does offer passengers a short excursion up Petersburg Creek. A few other small adventure and education-oriented ships have made brief stops at undeveloped sites on the island, like Agate Beach on the south end of the island.

Another group of tourists and recreationists arrive on private boats or yachts. This activity has increased in the last ten years. Many private yachts can be seen anchored in the bays of Southeast Alaska, including the bays of Kupreanof Island. Most of these yachts are from out of state.

Kayakers are also discovering Southeast Alaska as a destination for paddling trips. Some of these kayakers spend time along Kupreanof's shore or paddling up its creeks.

Outfitters and Guides

Commercial outfitters and guides provide their clients with opportunities to hunt, fish, hike, camp, kayak, view scenery, and learn about nature on Kupreanof Island. The areas most frequently used by guides are Kah Sheets Creek, Petersburg Creek, and Big Creek.

In 1998, about nine commercial guides spent time on Kupreanof Island. In the last ten years, the number of guides has increased from only one or two, following a growth trend seen throughout Southeast Alaska. This increase has leveled off in the past couple of

years, however. Some outfitters and guides are not counted in these figures because they remain on saltwater for their entire trip; since they do not directly use national forest lands, they do not require a permit from the Forest Service. They may be anchoring in Kupreanof Island bays, however, and viewing the island as a backdrop. The scenery of Kupreanof Island is important to many outfitters, guides, and charter boats, whether they actually step on to the island or not.

Several laws established by Congress enable the Forest Service to issue special use permits for commercial outfitting and guiding services. The Forest Plan provides direction to authorize outfitters and guides and directs that these services facilitate the use, enjoyment, understanding, and appreciation of national forest recreation settings.

Either temporary or priority use permits may be issued to qualified applicants. Temporary permits are valid for less than one year, and priority permits for more than a year. Most permits are issued annually as a temporary permit.

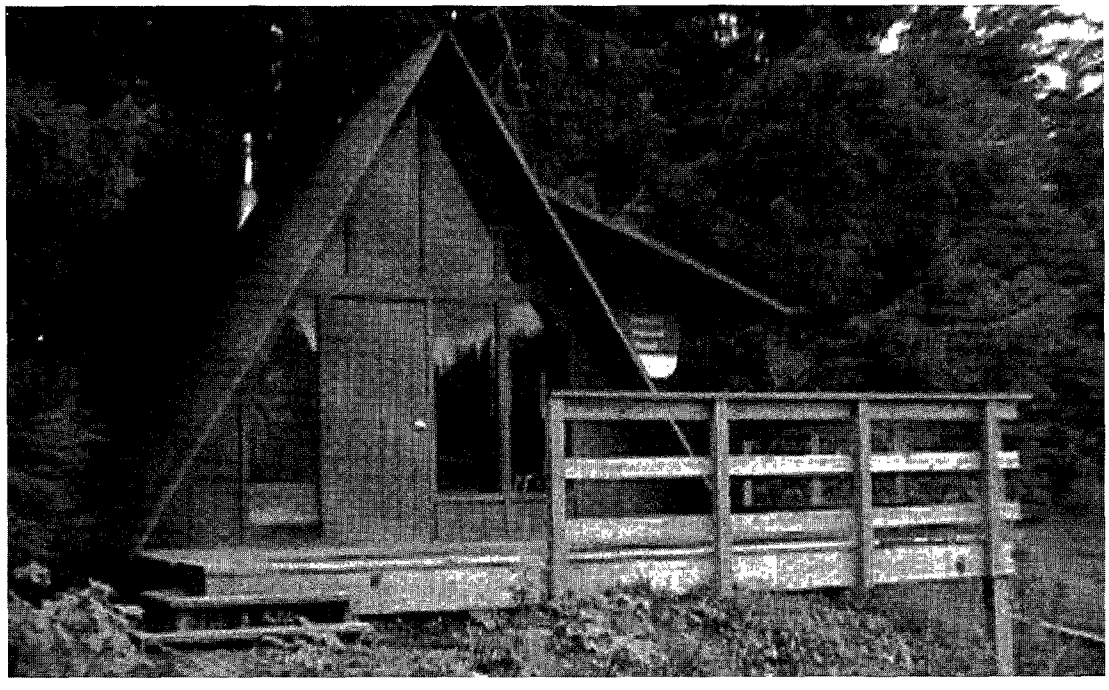
The Forest Service completed an environmental assessment in 1997 that analyzed recreation use capacities around Kupreanof Island and other areas of the forest. The document determined acceptable use levels for outfitters and guides and directs decisions on whether or not to authorize specific outfitter and guide activities. Outfitter and guide use is sometimes a concern to local residents and the Forest Service considers local input when issuing permits.

Recreation Facilities

Cabins

Eleven of the Petersburg District's 20 recreation cabins are on Kupreanof Island. Nine are located on ocean shorelines, and two at lakes. Two shoreline cabins, West Point and Castle River are the most popular cabins on the District, with an average of 95 nights per year reserved.

Kah Sheets Lake, Salt Chuck East, Kah Sheets Bay, Breiland Slough, Petersburg Lake, Castle Flats, and Big John Bay cabins receive moderate use. Portage Bay and Towers Arm are the least popular of the Dis-



Castle River Cabin

trict's 20 cabins, with an average of eight reservations per year. Most cabin use is seasonal, occurring during the summer and fall months. About 75 percent of cabin users are local and 25 percent are from out of town. Cabin use is by reservation, and a rental fee is charged. The number of people from out of state renting cabins is increasing as more people learn about the cabin system. Outfitters and guides may not reserve cabins for their clients.

Table 9. Cabin Reservations by Number of Nights Reserved

Cabin	1998	1997	1996	1995	1994
West Point*	81	110	91	91	n/a
Castle River	72	91	85	103	79
Castle Flats	34	40	49	58	57
Kah Sheets Bay	55	66	55	40	72
Kah Sheets Lake	65	80	78	89	67
Breiland Slough	46	65	73	61	44
Salt Chuck East	71	79	59	65	50
Towers Arm	8	8	0	1	3
Devil's Elbow	12	21	21	11	28
Petersburg Lake**	58	62	73	15	16
Portage Bay	23	17	8	17	21
Total	525	639	592	551	437

* West Point Cabin opened in 1995

** Petersburg Lake Cabin was closed due to flooding during portions of 1994-1995

Trails

Eleven National Forest trails are maintained on Kupreanof Island. They vary in length from about a quarter mile to over ten miles, and provide a variety of recreation opportunities. Four trails are on the west side of Kupreanof Island, near Kake, and can be reached from the road system. The remaining eight trails are on the east side of the island and are accessible by boat. There is an increasing demand for more loop trails.

The trails used most on Kupreanof Island lead to cabins that are near Kake. Trails near Kake include Cathedral Falls, Goose Lake, Hamilton Creek, and Big John Bay. The Castle River Trail and Kah Sheets Lake Trail are heavily used in conjunction with cabin use and fishing. The proximity of Petersburg Lake Trail to the City of Petersburg makes it a very popular trail even though it takes a boat to reach it since it is across the channel from Petersburg. All of these trails are scheduled for annual maintenance checks. Minor work is done each year, but major maintenance work or reconstruction depends on annual funding levels.

Table 10. Trails on Kupreanof Island by Length

Trail Name	Number of Miles	Difficulty Level
Petersburg Lake Trail	10.5	More Difficult
Portage Mountain Loop Trail	10.2	More Difficult
Petersburg Mountain Trail	3.5	Most Difficult
Colp Lake Trail	2.5	More Difficult
Kah Sheets Lake Trail	2.5	Easiest
Big John Bay Trail	1.75	More Difficult
Hooter and Castle River Trail	1.2	Easiest
Green Rocks Trail	1.0	Easiest
Hamilton Creek Trail	1.0	Easiest
Goose Lake Trail	0.75	Easiest
Cathedral Falls Trail	0.25	More Difficult

Wilderness

Kupreanof Island has one Congressionally Designated Wilderness area that was established in 1980 with the passage of the Alaska National Interest Lands Conservation Act (ANILCA).

The Petersburg Creek - Duncan Salt Chuck Wilderness comprises 44,000 acres on Kupreanof Island. The eastern boundary is adjacent to the community of Kupreanof, and the City of Petersburg is just across the waters of Wrangell Narrows. The heaviest use of the wilderness area occurs at Petersburg Creek because of the relatively easy access by boat from Petersburg.

The Petersburg Lake Trail extends from the wilderness boundary to the Petersburg Lake Cabin, a Forest Service public recreation cabin. The trail provides easy entry into the wilderness area. Petersburg Lake is large enough for floatplanes to land, further facilitating access.

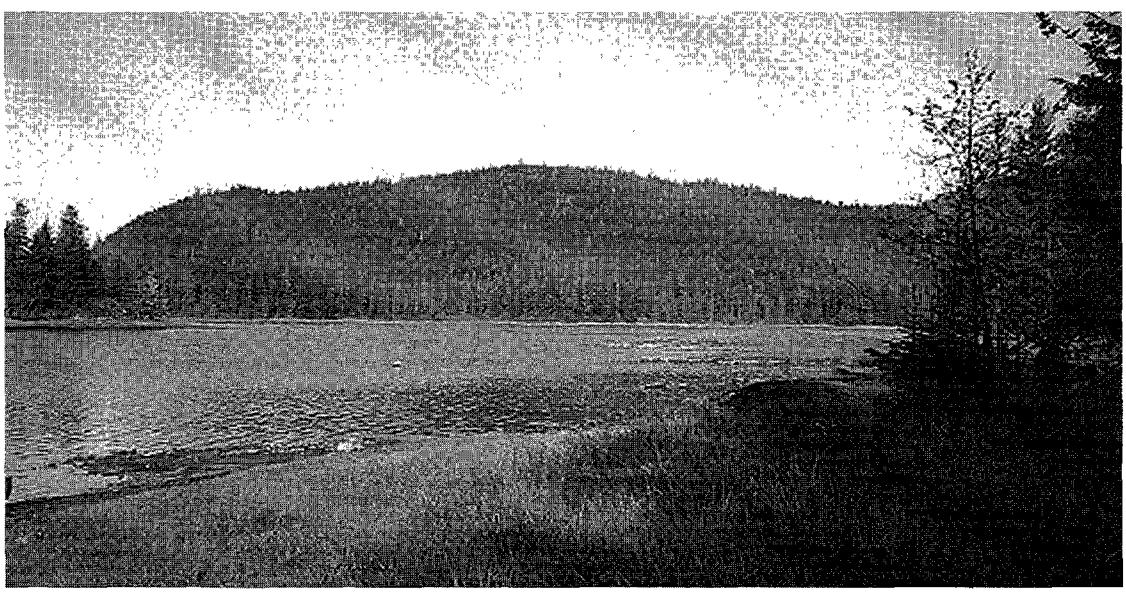
A primitive hiking trail, the Portage Mountain Loop, extends from the Petersburg Creek Cabin to the Salt Chuck East Cabin forming part of a potential loop trail around Portage Mountain. The Salt Chuck East Cabin, also in the wilderness area, is accessible by boat or floatplane.

Fishing and hunting are the main recreational activities in the Wilderness. Petersburg Creek receives heavy fishing use and provides excellent opportunities for catching steelhead, sea-run cutthroat trout, Dolly Varden char, coho, and pink salmon. Some angling for resident cutthroat trout and Dolly Varden char occurs in Petersburg Lake.

Duncan Salt Chuck is a popular waterfowl and bear hunting area. Some grouse hunting also occurs. Petersburg Creek is used for waterfowl and grouse hunting, but is closed for bear hunting.

The Wilderness is visited for hiking, photography, and simply as a place to escape the pressures of modern life. No significant snowmobile use is known to occur in the Wilderness, though it is allowed as a customary and traditional use under ANILCA.

The amount of recreation use in the Wilderness has generally been level without significant increases or decreases in the last several years. An exception is an increase in kayaking on Petersburg Creek.



Scenic Petersburg Creek within the Petersburg Creek - Duncan Salt Chuck Wilderness

Water skiing, jet skiing, and jet boating occur in the estuary of Petersburg Creek, which is just outside the Wilderness boundary under State jurisdiction. These activities are increasing and may have an impact on the solitude and quietness of the wilderness experience of other recreationists. Some people have commented that motorized recreation does not meet their expectations for a wilderness experience. Other people have commented that this use is outside the wilderness boundary and so the activities should not be restricted.

Recommended Wild and Scenic Rivers

The Forest Plan recommends 33 rivers throughout the Tongass National Forest for inclusion in the National Wild and Scenic Rivers System. They will be managed at their recommended level, Wild, Scenic, or Recreation, until Congress decides whether or not to officially designate them. Four of the recommended rivers are on Kupreanof Island. They are Castle River, Kushneahin Creek, Kah Sheets Creek, and Petersburg Creek (see Map 4 and Table 11).

Castle River

All 23 miles of Castle River including three major tributaries were recommended for Wild River designation in the 1999 Forest Plan ROD. Castle River is located in central Kupreanof Island and flows into Duncan Canal. The river has high commercial and sport fish values for steelhead, silver salmon, and cutthroat trout. Castle River also has high waterfowl hunting and recreational values. There are three Forest Service recreation cabins near the mouth of the river, the Castle Flats Cabin, Castle River Cabin, and Breiland Slough Cabin. About half of the cabin use occurs during the silver salmon season. The Alaska Department of Fish and Game lists Castle River as one of the top 19 "high quality" watersheds in Southeast Alaska. (High quality watersheds have good fish habitat, strong fish runs and nonpolluted waters.) In the context of southeast Alaska, Castle River is readily accessible for recreation, located only 16 air miles or 30 boat miles from Petersburg. However, extensive mudflats at the mouth of the river limit boat and plane access during low tides.

Kushneahin Creek

The 1999 Forest Plan ROD recommends Wild River designation for all nine miles of Kushneahin Creek, including the tributaries for Kushneahin Lake and Barrie Lakes. Kushneahin Creek, located on the southwest corner of Kupreanof Island, is typical of rivers in the rolling terrain of the Kupreanof lowlands. Its wildlife and fish values are of regional significance because of the black bear population and sockeye salmon and steelhead runs. Recreation use is light mainly due to the remoteness of the area, but some black bear hunting and fishing does occur. Kushneahin Creek is about 45 miles by air and 60 miles by water from Petersburg. It can also be reached from the communities of Point Baker and Port Protection, about ten miles across Sumner Strait on Prince of Wales Island.

Kah Sheets Creek

The Forest Plan recommends that Kah Sheets Creek from saltwater upstream for five miles, and Kah Sheets Lake, be designated a Wild River. The four-mile tributary flowing from the west to the main stream is recommended for Scenic River designation. Kah Sheets Creek has high fish values for steelhead, cutthroat trout, and silver and sockeye salmon. A partial-barrier waterfall about one and a half miles upstream concentrates migrating sockeye salmon providing a unique sport fishing opportunity. Kah Sheets Creek and Lake also have high cultural, wildlife, and recreational values. The mouth of the stream is an excellent area for waterfowl and black bear hunting. Forest Service public recreation cabins are at the mouth of Kah Sheets Creek and at Kah Sheets Lake. The Kah Sheets Lake Trail leads from saltwater to the lake and connects the two cabins.

Petersburg Creek

The Forest Plan recommends that Petersburg Lake and all seven miles of Petersburg Creek be placed in the Wild River designation. The stream has high fish values for steelhead, Dolly Varden char, and silver, sockeye, and pink salmon. The Alaska Department of Fish and Game lists Petersburg Creek as one of the top 19 "important" salmon streams in southeast Alaska. The stream also has high scenic and recreational value. Petersburg Lake Trail parallels the creek from saltwater to the Petersburg Lake Cabin.

Except for the lower 6.5 miles, Petersburg Creek lies entirely within the Petersburg Creek - Duncan Salt Chuck Wilderness. Both the Wilderness and Wild River land use designation guidelines are followed for managing Petersburg Creek. The most restrictive guidelines are followed, which usually means the Wilderness guidelines.

Table 11. Wild and Scenic Rivers

River	Miles	Level of Recommendation
Castle River	23	Wild
Kushneahin Creek	9	Wild
Kah Sheets Creek	5	Wild
Kah Sheets Creek	4	Scenic
Petersburg Creek	7	Wild

Current Projects

- Reconstruct Cathedral Falls Trail.
- Locate possible sites for construction of a recreation cabin in Duncan Canal.
- Look into modifying or relocating the Petersburg Lake recreation cabin away from flood prone areas.
- Complete work on Seal Point boat ramp.

Possible Projects on National Forest Lands

- Revamp the CCC shelter at Warm Fish Lake.
- Analyze an old logging road for possible conversion to a trail from Duncan Canal (south of Ohmer Slough) up to Road 6350 for biking and possibly off-road vehicle use if it meets road objectives for the area.
- Plan a kayak and canoe trail through Rocky Pass and Keku Strait including shelter or tent platform locations. Include a map of the trail that shows camp locations where there is easy beach access.
- Reconstruct the Petersburg Mountain Trail.
- The Big Creek area is used during fair weather for fishing, camping, and whale watching. The addition of a tent platform or shelter would supplement the recreation experience here.
- Improve the dock at the Tonka LTF for pleasure craft. Improve parking and vehicle access with the idea of putting parking out of view of Wrangell Narrows.
- Reconstruct trail at Goose Lake.

- Build trail to Bohemia Lake and consider shelter or other recreation development.
- Build a trail to Kluane Lake and consider other recreation development.
- Improve marking on the Colp Lake trail and replace bridges.
- Place a moorage or possible skiff haulout at the trailhead of Colp Lake trail.
- Rehabilitate trail to Green Rocks Lake.
- Reconstruct the trail between the Big John Bay cabin and the Kake road system.
- The Portage Bay cabin is near the Portage Loop Trail but is less used than the newer West Point Cabin in Portage Bay. The cabin could be maintained for hikers, if use increases when the trail is better marked.
- Construct access trail to Scott Peak alpine lakes from the road system.
- Design and publish a recreation map of Kupreanof Island.
- Mark trail to Kane Peak Lake to access grayling fishing and possibly construct a shelter.
- Establish a trailhead from a good anchorage in Kah Sheets Bay to make boat access to the trail. Convert the old logging road near Kah Sheets Bay for trail use and build a plank spur trail to the Cove to reach a better floatplane landing area.
- Establish bear viewing sites at Kah Sheets falls and other areas of bear concentration.
- Construct new trailheads off Bohemia Road for the Portage Mountain Loop Trail.
- Brush and mark a trail from the recently built Shamrock road system to Irish Lakes. Trail hardening will be planned if there is high use of the trail or resource impacts.
- Improve trail and build shelters along Portage Mountain Loop Trail.
- Locate, design, and construct the remainder of the Portage Mountain Loop Trail.
- Design and publish a brochure for rock hounds including a map of the varied geology of Kupreanof Island.
- Build a bear-viewing observatory at Lovelace Creek.
- Build a bear viewing observatory and a trail along Kushneahin Creek.
- Improve old Duncan Creek Trail route and look at opportunities to connect it to the Portage Mountain Loop Trail to make an extensive loop trail.
- Construct a recreation site at Indian Point including a cabin. This may be a large group use area.
- Maintain motorized access to Duncan Canal and develop dispersed picnic/ camping sites.

Scenery

Forest Plan Scenery Goal:

"Provide Forest visitors with visually appealing scenery, with emphasis on areas seen along the Alaska Marine Highway, State highways, major Forest roads, and from popular recreation places; recognize that in other areas where landscapes are altered by management activities, the activity may visually dominate the characteristic landscape." (Forest Plan 2-4)

Forest Plan Land Use Designation Standards & Guidelines for Scenery:

Wilderness (Forest Plan 3-18) and **Wild River** (Forest Plan 3-102) Management activities should not be visually evident to the casual observer.

Remote Recreation (Forest Plan 3-68) and **Old-Growth Habitat** (Forest Plan 3-80) Management activities should not be visually evident to the casual observer. Small areas of nonconforming developments may be considered on a case-by-case basis.

Municipal Watershed (Forest Plan 3-74) Visual quality conditions are the result of the municipality's watershed management objectives.

Semi-Remote Recreation (Forest Plan 3-87) Management activities may be visually evident, but should be subordinate to the characteristic landscape.

Scenic River (Forest Plan 3-109) Management activities in the foreground of the river corridor should not be visually evident to the casual observer. In the middleground and background, activities should be visually subordinate to the characteristic landscape.

Scenic Viewshed (Forest Plan 3-132) People using identified popular travel routes and use areas should view a natural-appearing landscape. Management activities in the foreground should not be visually evident to the casual observer. Activities in the middleground and background should be visually subordinate to the characteristic landscape.

Modified Landscape (Forest Plan 3-140) People using identified popular travel routes and use areas would view a somewhat modified landscape. Management activities in the foreground should be subordinate to the characteristic landscape, but may dominate the landscape in the middleground and background.

Timber Production (Forest Plan 3-148) Timber management activities may dominate the visual character of the landscape.

An important aspect of Kupreanof Island's natural resource base is its attractive setting. The importance of scenic character of a land area is evident by increased tourism and a heightened awareness of and sensitivity to scenic resource values by Alaska's residents and visitors alike. Because of this public concern, the "visual landscape" has been established as a basic resource of the land, and receives consideration along with the other forest resources.

The Forest Service developed the Visual Management System (VMS) in 1976 (revised in 1996) as a method of inventorying visual or scenic resources and providing measurable standards for their management. The VMS deals with visible aspects of land that describes its landscape character and the effect human activities have on it. The VMS applies to every acre of National Forest System lands and all activities administered by the Forest Service.

Scenic character of a land area can be described as an overall visual impression of its landscape attributes – the physical appearance that gives it an identity and "sense of place" or "lay of the land". Landscape character gives a geographic area its image. These areas or types of landscapes are distinct geographic units of land, each having distinguishing visual characteristics of landform, rock formations, waterforms, and vegetative patterns.

Kupreanof Island's most distinctive landscape features are its landforms and its vegetative patterns. The western two-thirds is low-lying vegetation immediately along the shoreline with small hills or mountains seemingly cropping up many miles distant in the background. The eastern one-third is comprised of a large block of high mountains ranging from Frederick Sound south to Lindenberg Point at the Wrangell Narrows waterway.

In addition to a physical attribute inventory, a visual disturbance analysis is completed by cataloguing the type and degree of human caused alterations to the landscape's original appearance. Human changes are characterized by degrees of alteration, that is, modifications to the natural character of the landscape. These alterations, as viewed by a casual forest visitor, are classified as ranging from:

- unaltered (changes are not noticeable);
- slightly altered (changes barely noticeable);
- moderately altered (changes easily noticed);
- heavily altered (changes dominate the view);
- drastically altered (changes overpower the view to such an extent that no further activities can be implemented).

The intent of the Forest Plan standards and guidelines is to allow commodity development while maintaining the scenic integrity of its landscapes over time. The Forest Plan provides guidance for managing the amount of visual disturbance that can be allowed in any given area, especially along the waterways, roads, recreation places, and popular sites. In order to provide a consistent and organized method of managing the scenic resource, the Forest Plan designates certain viewpoints from which scenic quality will be managed. These are called "Visual Priority Routes and Use Areas".

Visual Priority Routes and Use Areas

Visual Priority Routes and Use Areas are the viewpoints from which scenery will be emphasized. These areas will be considered when planning and analyzing specific projects. The following list comprises areas from which viewsheds are identified (as described in the next section). The Visual Priority Routes and Use Areas for Kupreanof Island are as follows:

Travel and Tour Ship Routes: Wrangell Narrows, Frederick Sound, Sumner Strait, Keku Strait from Frederick Sound to Big John Bay.

State Marine Park: Beecher Pass.

Wild and Scenic Rivers: Petersburg Creek, Kah Sheets Creek and Lake.

Small Boat Routes: Beecher Pass, Duncan Canal to Salt Chuck, Keku Strait, Rocky Pass from Beacon Island south to Meadow Island, Towers Arm, McDonald Arm, Whiskey Pass.

Saltwater Use Areas: Frederick Sound, Sukoi Islands, Hamilton Bay, Little Duncan Bay, Kah Sheets Bay, Totem Bay east to Mitchell Point, Duncan Canal to Indian Point, Portage Bay, Douglas Bay, Point Barrie to Totem Bay, Totem Bay east to Mitchell Point.

Dispersed Recreation Areas: Petersburg Creek, Hamilton Creek from Cathedral Falls to 2 miles inland, Petersburg Lake, Kah Sheets Lake, Colp Lake, Goose Marsh Lake, Agate Beach west of Totem Bay, Hamilton Creek.

Communities: Kake, Kupreanof, Petersburg.

Forest Service Cabins: Big John Bay, Breiland Slough, Castle Flats, Castle River, Kah Sheets Bay, Kah Sheets Lake, Petersburg Lake, Portage Bay, West Point, Salt Chuck East, Towers Arm, Towers Lake.

Hiking Trails: Hooter Trail (#445), Castle River Trail (#459), Colp Lake Trail (#461), Goose Lake Trail (#462), Hamilton Creek Trail (#463), Big John Bay Trail (#465), Cathedral Falls Trail (#467), Duncan Salt Chuck Trail (#469), Kah Sheets Lake Trail (#503), Petersburg Lake Trail (#534), Petersburg Mountain Trail (#585 & 586), Portage Bay Trail.

Boat Anchorages: Portage Bay.

Viewing Areas and Visual Conditions

During project analysis, viewsheds are used as a method of assessing scenic concern. Viewsheds are defined as a geographically distinct landscape that people can view or perceive as a single unit from one or more viewpoints. However, since the extent of the viewing locations is so broad, viewsheds will shift and overlap depending upon the viewing distance and position of the viewer.

Portage Bay Viewshed

The Portage Bay saltwater use area provides a good anchorage and is the site of two Forest Service recreation cabins (West Point and Portage Bay), a Forest Service administrative site, and a log transfer facility (LTF). The administrative site and LTF are seen in the foreground from Portage Bay. The Bohemia Range, Missionary Range, Portage Mountain, and Kupreanof Mountain are seen as middleground (1/4 to five miles) and background (greater than five miles) from this viewpoint. Evidence of recent logging is apparent along the ridge facing the eastern shoreline of Portage Bay. The proposed timber harvest along the Bohemia Range is not yet evident, but was designed to be natural appearing.

The Petersburg Lake/Portage Bay Trail (#534), and the Portage Bay/Duncan Salt Chuck Trail (#469) also view this area. Use of these trails in the past has been limited and infrequent. The trails are not maintained and are unsurfaced. Vegetation and topography limit foreground viewing. Middleground (1/4 to five miles) viewing opportunities are occasional; however, visible areas are likely to be also viewed from Portage Bay, which is of higher scenic concern.

Frederick Sound Viewshed

Frederick Sound is a sport and commercial fishery and a major travelway for fishermen, ferries, cruise ships, sport boats, and barges. Most of the northern shoreline of Kupreanof Island is seen in the middleground and background distance from Frederick Sound. Many popular fishing spots are found close to the northern shore, from which the island is viewed as foreground (less than 1/4 to 1/2 mile) for extended periods of time. The island is also seen in the background viewing area (greater than five miles) from fishing locations along the mainland across Frederick Sound. The shorelines are generally accessible, but lack the protection needed for reliable anchorage. At the shoreline, foreground trees dominate the view. From further offshore, the steep ridge slopes become predominant. Some evidence of past logging is visible, most notably inside the Missionary Valley, and to a lesser degree at the northernmost point of the Lindenberg Peninsula. Of the greatest visual sensitivity are the beach fringe, and the steep faces of the Bohemia Range, Missionary Range, and Scott, Sheridan, Sherman, and Del Monte Peaks.

Extensive timber harvest and road systems occur on private lands at the northwest end of the island between Frederick Sound and Hamilton Bay. The large scale of this harvest dominates views from nearby Frederick Sound and Chatham Strait.

Hamilton Bay Viewshed

The landscapes of this viewshed are generally low-lying and irregular with occasional steep ridges over 1,000 feet in elevation. The majority of these ridges are not visible from Hamilton Bay and Keku Strait. Hamilton Bay, a saltwater use area, provides water access

to the northwest portion of Kupreanof Island. Views from Hamilton Bay extend from the foreground to middleground viewing distances.

Timber harvesting occurred to the north and east of Hamilton Bay during the late 1960's to mid-1970's, producing numerous large clearcuts. These clearcuts dominate the foreground and middleground distance zones around Hamilton Bay. As a result, the existing visual disturbance level in this area has not visually recovered sufficiently to meet the Forest Plan scenic standards and guidelines.

Kake Road System Viewshed (Public Use Roads 6000, 6030, 6040, and 6314)

There are no roads on Kupreanof Island that are considered visual priority routes. However, they are included in this discussion because of their high use by residents of Kake. Although roads from Kake provide routes to Hamilton Creek, the north shore of Hamilton Bay, Cathedral Falls, and Goose Marsh Lake, scenery is not emphasized from this road system. Trails from these roads access these locations and the recreation cabin at Big John Bay. These roads and trail corridors are primarily used by Kake residents for hunting and fishing. The remainder of the Kake road system receives little recreational use. Views from these portions of the Kake road system appear highly modified from past timber harvest.

North Kupreanof Island – Portage Bay

Rocky Pass Viewshed

The landscapes seen along this saltwater viewshed are characterized by low-lying topography with occasional ridges rising to over 1,000 feet in elevation. Except for two recreation cabins, and a fish pass on Irish Creek (not seen from Rocky Pass), this area retains a pristine appearance. The shoreline and steep slopes are viewed as foreground and middleground from Keku Strait and Rocky Pass. Keku Strait and Big John Bay recreation cabin are considered for scenic emphasis, since they receive frequent recreational use. Viewing distance in Big John Bay extends to the foreground and middleground distance zones.

Duncan Canal Viewshed

Duncan Canal is a popular recreation area for residents of Petersburg and outlying areas. Five Forest Service cabins are located within or accessed from this viewshed. Especially popular are Castle Flats cabin, Castle River cabin, and the Breiland Slough cabin. The Towers Arm and Towers Lake cabins receive considerably less use and are difficult to access. In Duncan Canal, the area from Indian Point south is a travel route; the remainder of the canal north to Salt Chuck is a small boat route.

Kupreanof Island is viewed in the foreground, middleground, and background distances from Duncan Canal. Generally the landscape character of the South Lindenberg Peninsula is steeper and more visually evident than the area to the west of Duncan Canal. Much of the landscape on the west side is flat and unseen from saltwater, however the higher ridges facing the Canal can be seen in the middleground and background distance.

The effects of older timber harvesting are visible in some places along the beach fringe on both sides of the canal. More recent timber harvest has occurred on the steeper slopes of the South Lindenberg Peninsula and is visible from saltwater; however, the natural character still remains dominant. Numerous private landholdings and cabins dot the shoreline along Duncan Canal.

Wrangell Narrows Viewshed

Kupreanof Island is viewed in the foreground, middleground, and background distance from locations along the Wrangell Narrows. The Narrows, include Beecher Pass and the entrance from Frederick Sound. Wrangell Narrows receives heavy use by fishing and recreational vessels and is a segment of the Alaska Marine Highway. Much of Kupreanof Island which faces the Narrows is also viewed as middleground and background from residences on Mitkof Island and by travelers on the Mitkof Highway between Hungry Point and Papkes Landing. Although on a different island this highway is priority travel route. Two Forest Service trails access the island from Wrangell Narrows, one leading to Petersburg Mountain, and the other to Green Rocks Lake.

The topography of Kupreanof Island seen from Wrangell Narrows is predominantly of the South Lindenberg Peninsula. The area is characterized by generally steep landforms with some large lowland areas towards the southern end of the narrows at Beecher Pass, and near Petersburg at Skoggs Creek. Ridges rise to over 2,000 feet in elevation. The steep faces of these ridges are viewed continually by residents and visitors, so are particularly visually sensitive. Any degree of change to these slopes would be highly evident. Of less visual concern are the lowlands and slopes which are viewed at oblique angle from major viewpoints.

Portions of the Tonka Mountain Timber Sale are viewed in the middleground from the Wrangell Narrows and the Mitkof Highway, and in the background from the Three Lakes Loop Road on Mitkof Island. The log transfer facility located at Tonka is seen in the foreground for the narrows and the middleground from Mitkof Highway. Visually, the timbered slopes of Kupreanof Island along the Wrangell Narrows are significant as a natural backdrop to the development that is occurring on Mitkof Island.

Sumner Strait Viewshed

The southern end of Kupreanof Island is viewed in the foreground, middleground, and background distances from three priority travel routes: Southern Keku Strait, Sumner Strait, and lower Duncan Canal. The priority route designations reflect cruise ship and Alaska Marine ferry use, and high levels of recreation use occurring along these travel routes.

The topography of this viewshed is generally irregular and low-lying with occasional steep ridges ranging from 1,000 to 1,600 feet in elevation. Past timber harvesting along the beach fringe has resulted in a highly modified visual condition in several locations, particularly the shoreline from Point Barrier to Totem Point.

Forest Service recreation cabins are located at Kah Sheets Lake and Kah Sheets Bay. These cabins and the trail which connects them are identified as priority use areas, reflecting their high level of recreational use. Timber harvesting occurred around the Kah Sheets Bay cabin during the early 1970's. These activities are readily apparent from the bay, but do not dominate the visual setting. Totem and Douglas Bays are identified as priority saltwater use areas, reflecting their recreational use as anchorages.

Possible Scenery Projects

- Assess scenic quality and viewsheds at recreation sites, roads and trails.
- Inventory visual quality objectives and mitigate visual impacts where possible.
- Mitigate visual impacts of the potential electrical powerline.
- Rehabilitate scenic views with vegetation management where appropriate.

Subsistence

Forest Plan Subsistence Goal:
"Provide for the continuation of subsistence uses and resources by all rural Alaskan residents." (Forest Plan 2-4)

Forest Plan Land Use Designation Standards & Guidelines for Subsistence:

Wilderness (Forest Plan 3-19) Rural residents engaged in subsistence shall have reasonable access to subsistence resources. Appropriate use of snow machines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents shall be permitted, subject to reasonable regulation to protect wilderness resource values (ANILCA Section 811). The use of other mechanical/motorized equipment, such as chainsaws, is allowed by permit only.

Remote Recreation (Forest Plan 3-64), **Old-Growth Habitat** (Forest Plan 3-77) and **Semi-Remote Recreation** (Forest Plan 3-84): Permit subsistence activities.

Municipal Watershed (Forest Plan 3-74): Permit subsistence activities in accordance with the Federal, state, and local laws.

Wild River (Forest Plan 3-103) Allow subsistence activities in Wild River corridors, subject to reasonable regulations to protect Wild River resources.

Scenic River (Forest Plan 3-110) Allow subsistence activities in the Scenic River Land Use Designation, subject to reasonable regulations to protect Scenic River resources.

Scenic Viewshed (Forest Plan 3-128), **Modified Landscape** (Forest Plan 3-137), and **Timber Production** (Forest Plan 3 - 3-145): Permit subsistence activities.

What is Alaska Subsistence?

The Alaska National Interest Conservation Act (ANILCA, 1980), Section 803, defines subsistence use as the "customary and traditional uses by rural Alaska residents of wild, renewable resources for the 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 by-products of fish and wildlife resources taken for consumption; and for customary trade."

Subsistence hunting, fishing, trapping and gathering activities represent a major focus of life for many Southeast Alaskan residents on Kupreanof Island. 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 such activities for reasons unconnected with income or tradition. For all these individuals, subsistence is a lifestyle reflecting deeply held attitudes, values, and beliefs.

Subsistence Use on Kupreanof Island

Six communities in Southeast Alaska have traditional household hunting areas on Kupreanof Island. The Tongass Land Management Plan EIS incorporates the Tongass Resource Use Cooperative Study (TRUCS). TRUCS is a compilation of subsistence data used for evaluating the effects of actions in the Forest Plan.

None of the communities appear to be wholly dependent on Kupreanof Island for subsistence resources, particularly for deer harvest. In the past, Kupreanof Island was an impor-

tant deer harvest area. However, during the winter of 1975, the Alaska Department of Fish and Game closed the island to the taking of deer for subsistence hunting. In 1992, the island was reopened for subsistence hunting.

Communities with Traditional and Present Subsistence Use on Kupreanof Island

Edna Bay

Edna Bay is located on southeast Kosciusko Island, west of Prince of Wales Island. Up to 5 percent of the households surveyed during the 1987 TRUCS survey have hunted deer along the east coast of Duncan Canal on Kupreanof Island. Since 1992, no deer harvest has been recorded for Edna Bay on the island. Kupreanof Island is also not listed as a community use area for Edna Bay.

Kake

Kake has a traditional household hunting area along Rocky Pass and the northwest portion of Kupreanof Island. About 91 percent of all households harvest some subsistence resource, most commonly deer, salmon, berries and wood. Kake also uses the Kupreanof shoreline for herring roe on kelp, clams, cockles, chitons, and seaweed. Since the reopening of deer harvest on Kupreanof Island, deer harvest areas have included Rocky Pass and the interior west Kupreanof Island. The presence of a road system has made a larger, more accessible area on the island available for deer harvest.

Petersburg/Kupreanof

Petersburg is located on Mitkof Island across the Wrangell Narrows from the City of Kupreanof. Traditional hunting areas on Kupreanof Island for Petersburg included areas around Totem Bay, west Duncan Canal, and the Petersburg Creek/South Lindenberg area. Since reopening Kupreanof Island to deer harvest, the Petersburg community has used northeast Kupreanof Island, west of Duncan Canal and southwest Kupreanof Island. More than 93 percent of all households in both communities harvested some subsistence resource.

Point Baker

Point Baker is located on the northern tip of Prince of Wales Island. Point Baker has traditionally hunted the southwest corner of Kupreanof Island. More recent deer harvest has occurred in the Portage Bay Area.

Port Protection

Port Protection is also located at the northern end of Prince of Wales Island. Traditional household hunting areas include the southern shoreline of Kupreanof Island, and north along Rocky Pass. Since 1987 no deer harvest has been recorded for Port Protection on Kupreanof Island.

Wrangell

Wrangell is located on the tip of Wrangell Island, 35 miles southeast of Petersburg. Traditional household hunting areas for Wrangell on Kupreanof Island are sparse and located along the shoreline. Recent deer harvest areas include the southwest end of the Island. Kupreanof Island is not listed as a community use area for Wrangell.

ANILCA Section 810

ANILCA requires a priority for subsistence uses by rural residents on Federal public land in Alaska (Title VIII). Since 1990, the Federal Government has been managing resources for subsistence use on Federal public lands through the Federal Subsistence Board.

In 1995, the Ninth Circuit Court of Appeals ruled that the existing scope of the subsistence program should be expanded to include "...those navigable waters in which the United States has an interest by virtue of the reserved water rights doctrine." Subsistence management of these waters became effective in October 1999.

Several pieces of legislation and sets of regulations provide the framework of our legal responsibilities. These are:

- Title VIII of ANILCA;
- Federal Subsistence Management Regulations (36 CFR 242 or 50 CFR 100)
- Federal Advisory Committee Act (FACA);
- Federal Advisory Committee Management Regulations (41 CFR 101-6)

Section 810 of ANILCA imposes significant, but largely procedural restrictions on management of Alaska public lands. Under Section 810, all future decisions (except on conveyed state and Native Corporation lands) must take into consideration the effects of these decisions on subsistence.

Prior to any action taken on Kupreanof Island, an evaluation must be made to determine effects of the action on subsistence and alternatives available to reduce or eliminate the need for the proposed action. If the activity has the potential to "significantly restrict subsistence use," it cannot be implemented until the agency: (1) gives notice to the State (Commissioner of Fish and Game) and the affected local fish and game advisory committees and regional advisory council(s); (2) gives notice and holds a hearing near the lands being considered or impacted, and (3) determines that the restriction of subsistence is necessary, that the least amount of land will be affected, and that reasonable steps will be undertaken to lessen adverse effects to subsistence.

What is Significantly Restricted Subsistence Use?

The Alaska Land Use Council's definition is as follows: "A proposed action shall be considered to significantly restrict subsistence uses, if after 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. Reductions in the opportunity to continue subsistence uses generally are caused by: reduction in abundance of, or major redistribution of resources; substantial interference with access; or major increases in the use of those resources by non-rural residents. The responsible official must be sensitive to localized, individual restrictions created by any action and make his/her decision after a reasonable analysis of the information available."

What is a Determination?

If there may be a significant restriction of subsistence use, a three-part Determination must be made before the action may be authorized. The determination will include and demonstrate that: (1) the subsistence restriction is necessary, and consistent with sound management principles for utilizing public lands; (2) the proposed activity will involve the minimum amount of public lands necessary to accomplish the purpose of such use and occupancy, or other disposition; and (3) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from the action(s).

Projected Need for Section 810 Subsistence Hearing on Kupreanof Island

Subsistence hearings are held when a proposed action has the potential to significantly restrict subsistence use.

An analysis, primarily for deer use, was conducted through the Tongass Land Management Plan Revision process. Use patterns and number of animals taken for subsistence use were depicted. Future use and human population growth were estimated using a multiplier factor. This information was used along with the deer model to predict supply and demand figures as far into the future as 2095. In five WAAs located on Kupreanof Island no significant restriction for subsistence use of deer is expected to occur into the foreseeable future.

Table 12 shows the predicted deer demand for these WAAs on Kupreanof Island and what the habitat capability figures or deer supply for these WAAs would be in the years 1995, 2005 and 2095. Significant restrictions for subsistence use of resources other than

deer is not expected to occur for any foreseeable projects. Road management will carefully consider access to subsistence resources. Individual projects will undergo an analysis for effects on subsistence.

Table 12. Tongass Land Management Plan Revision FEIS Part 2, Pages H64-H95.

	1995		2005		2095	
WAA	Number of Animals Harvested	Habitat Capability	Number of Animals Harvested	Habitat Capability	Number of Animals Harvested	Habitat Capability
5131	21	2070	25	2046	44	1838
5132	40	943	47	882	85	744
5134	46	3158	54	3079	100	2944
5136	6	1349	7	1326	13	1035
5138	58	1014	68	1014	123	652

Possible Projects

- Continue to work with communities and Tribal Governments to identify and manage areas important for subsistence use.
- Monitor subsistence use throughout Kupreanof Island.
- Look for opportunities to improve access to subsistence resources.

Transportation

Forest Plan Transportation Goal:
"Develop and manage roads and utility systems to support resource management activities; recognize the potential for future development of major Transportation and Utility Systems." (Forest Plan 2-5)

Forest Plan Land Use Designation Standards and Guidelines for Transportation:

Wilderness (Forest Plan 3-20) and **Wild River** (Forest Plan 3-96): New roads and new airstrips are not permitted, except to access surrounded state and private land and valid mining claims. Existing roads are closed to motorized uses subject to ANILCA provisions.

Remote Recreation (Forest Plan 3-68) New roads are not permitted except to access valid mining claims. Existing roads are closed to motorized uses subject to ANILCA provisions.

Semi-Remote Recreation (Forest Plan 3-88) New roads are generally not allowed, but may be considered on a case-by-case basis if Recreation Opportunity Spectrum (ROS) objectives can be met. Existing roads should be managed or closed according to ROS objectives.

Modified Landscape (Forest Plan 3-143): When developing and managing transportation systems, give special emphasis to maintaining fish and wildlife habitat values. Seek to avoid road crossings on existing trails or locating roads parallel to trails.

Municipal Watersheds (Forest Plan 3-75) Allow roads needed for the routine operation, maintenance, and improvement of the municipal water system and watershed. Allow roads to provide for timber salvage operations if they are permitted by the watershed's establishing legislation (if any) and after consultation with the affected municipality.

Old-growth Habitat (Forest Plan 3-81) New road construction is generally not permitted, but new roads may be constructed if no feasible alternative is available.

Scenic River (Forest Plan 3-111) Develop and manage transportation systems with consideration for the recreation emphasis of the Scenic River classification.

Scenic Viewshed (Forest Plan 3-134): When developing and managing transportation systems, give special emphasis to visual quality objectives and maintaining fish and wildlife habitat values.

Timber Production (Forest Plan 3-150) Develop and manage transportation systems in a manner compatible with the Land Use Designation. Consider future recreational access in the location and design of roads.

Kupreanof Island Roads

Kupreanof Island has 211 miles of forest roads on national forest lands. Most of these were built to access timber and to transport logs to production facilities. Three separate, unconnected road systems account for all of the road miles. These systems lead from log transfer facilities located at Kake, Portage Bay, and Tonka Mountain.

Kake Road System

The Kake road system consists of 105 miles of forest roads, and includes all the roads on national forest land that are connected to the City of Kake. About 125 miles of other roads on Native and City of Kake lands are also connected to this system. It is the only road system on the island that is linked to the Alaska Marine Highway System, which provides ferry service to other towns in Southeast Alaska. People use this road network to access places for recreational activities, subsistence hunting and gathering, free-use timber harvest, firewood gathering, and other activities.

Connecting the 1.5 miles between the Kake road system and the Portage Bay road system is feasible, but is a controversial issue. Public comments are split on this topic. While some people would like a road connection to the Portage Bay road system and on to Petersburg by ferry, others would like to keep the Kake roads separate from the other island road systems. The Forest Service has no plans to connect the roads at this time.

Portage Bay Road System

The Portage Bay road system has 58 miles of roads, and can be accessed by the public at the log transfer facility in Portage Bay by private boat or barge. These roads are used mainly for timber harvest, but are used occasionally for recreation, hunting, and trapping. No non-national forest land is near Portage Bay.

Tonka Road System

The Tonka Road system is on the south of the Lindenberg Peninsula, and consists of 48 miles of roads. Most of these roads were built for timber harvest. About six miles of road were originally built by the military in support of a national defense radar installation. Access at that time was a beach landing in Duncan Canal, which has now become blocked by alder. The public can now access this road system from the Tonka log transfer facility on the Wrangell Narrows. Tonka roads are used mainly for timber harvest, but recreation, hunting, trapping, and mineral exploration occasionally occur.

Heavy equipment building a new logging road

Road Maintenance and Access Management

Forest Plan direction is to manage and maintain roads to protect water, soil, fish, and wildlife resources. As we plan future projects, we intend to limit the new roads that are left open to those that are needed for silvicultural or administrative purposes and have a strong recreational value. In some cases, when existing roads are not needed for resource management in the foreseeable future, they may be closed. In other cases, roads with high recreational values may be upgraded for user comfort and to protect resources.

The Forest Plan specifies road management standards for each land use designation. On Kupreanof Island roads exist only in LUDs that allow them (see Table 13).

Nationally, the Forest Service has committed to reducing detrimental environmental effects caused by roads. Locally, this may mean closing some roads by physically removing drainage structures and restoring natural drainage patterns. About three miles of the Portage Bay road system within an old-growth habitat LUD will be closed to motorized traffic in 1999. Also this year, about 14 miles of the Tonka road system will be storm-proofed by adding driveable waterbars to aid in controlled runoff during storm events. Some newly constructed roads may be closed after timber harvest but before local use becomes established, such as occurred on some Shamrock Timber Sale roads in 1998. Roads may also be upgraded to fix water and fisheries problems, as is planned for parts of the Tonka road system.

Closing roads can be controversial, especially when use has been established. Any changes to existing roads, whether closures or upgrades, will be incorporated into project planning with opportunities for public involvement.

An extensive road condition survey is currently underway on Kupreanof Island. The results of the survey will identify problem areas and help us budget road maintenance funds for their best use.

Since the road maintenance budget is usually not enough to fix all of the road problems at once, some projects get deferred. Timber sales are the primary means of funding road construction, reconstruction, and closures. Road condition surveys have been and will continue to be used in the preparation of timber sales in order to fund deferred projects. The condition survey is identifying problems with fish passage through culverts, erosion on and adjacent to roads, brush encroachment, and under-sized culverts. In addition, increased road maintenance budgets are expected in the future in order to fulfill the national commitment of reducing road related environmental impacts.

Table 13. Miles of National Forest Road by LUD

Forest Plan Land Use Designation	Miles of Road on Kupreanof Island
Wilderness	0
Wild River	0
Remote Recreation	0
Municipal Watershed	0
Old-Growth Habitat	8
Semi-Remote Recreation	4
Scenic River	0
Scenic Viewshed	25
Modified Landscape	36
Timber Production	138
TOTAL	211

Roads and Wolves

Recent studies have suggested that wolf populations on the Tongass National Forest can be directly affected by the density of road miles in a given geographic area. Road densities are calculated by dividing the number of miles of road by the area of the surrounding land. The Forest Plan discusses this relationship of roads to wolves as well as the relationship of roads to marten. These species are management indicator species used to weigh the effects of project alternatives on forest wildlife.

Ongoing studies with radio-collared wolves suggest that wolves on Kupreanof Island are wide-ranging. Home ranges cross over all the road systems and into roadless areas. Since wolf packs have such wide ranges, road density analyses for Kupreanof Island is calculated at the island level instead of individual drainages or road systems. Using this method, the road density for national forest lands on Kupreanof Island is 0.05 miles per square mile.

Existing Roadless Areas

In order to qualify as a Roadless Area, an area must contain at least 5,000 acres of undeveloped land that does not contain improved roads maintained for travel by passenger vehicles. There are eight Roadless Areas on Kupreanof Island, totaling 501,200 acres, not counting the Petersburg Creek - Duncan Salt Chuck Wilderness. Table 14 gives acres of each roadless area on Kupreanof Island by Land Use Designation. Refer to the Forest Plan, Appendix C for a description of each Roadless Area on the island.

Many people would like more roads while others consider the value of areas to be highest when left unroaded. The Forest Plan, when assigning land use designations across Kupreanof Island, recognized that timber harvest would occur in some of the present roadless areas. Because of this, some roadless areas will become smaller as new roads are built into them. Whenever new projects are proposed, the roadless character of the land and public comments will be included in the analysis.

Table 14. Acres by Land Use Designation for Each Roadless Area

Land Use Designation	North Kupreanof #211	Missionary #212	Five Mile #213	South Kupreanof #214	Castle #215	Lindenberg #216	Green Rocks #217	Rocky Pass #243
Municipal Watershed	780	0	0	0	0	0	0	0
Modified Landscape	2,200	3,600	1,200	3,900	50	5,200	200	100
Old Growth Habitat	22,500	6,200	2,000	28,500	10,700	2,500	9,700	8,300
Remote Recreation	0	0	0	2,900	1,800	0	0	18,500
Scenic Viewshed	530	3,700	7,700	924	40	6,200	350	70
Semi-Remote Recreation	16,200	0	1,800	48,000	22,000	0	0	19,800
Timber Production	72,400	3,300	6,500	124,500	9,600	11,800	370	380
Special Interest Area	84	0	0	0	0	0	0	0
Wild River	0	0	0	7,900	5,700	0	0	0

National Roadless Area Conservation Proposal

The Forest Service proposes to issue a rule that would initiate a two-part process to protect roadless areas. A Notice of Intent was placed in the Federal Register on October 19, 1999 to elicit public comment. The Tongass National Forest, which was previously excluded from the moratorium on road building in the National Forests, was mentioned for specific public comment.

If adopted, part one would immediately restrict certain activities in unroaded portions of Inventoried Roadless Areas, as previously identified in RARE II or existing forest plan inventories. The activities that may be restricted may include road construction and/or timber harvest, or all management activities. RARE II (and previously RARE) were "Roadless Area Review and Evaluations" that occurred during the early 1980s. From the RARE II study, about 56 million acres were recommended and subsequently designated as Wilderness.

Part two of the proposed rule would establish national direction for managing inventoried roadless areas, and for determining whether and to what extent similar protections should be extended to uninventoried roadless areas. After approval of a final rule, the direction for part two would be implemented at the forest plan level through the plan amendment and NEPA process. This national direction would guide land managers in determining what activities are consistent with protecting the important ecological and social values associated with roadless areas.

Land management direction for the inventoried roadless areas on the Tongass National Forest, including the management of Kupreanof Island, may or may not change as a result of this directive. Depending on the outcome of the Roadless Area Conservation Project DEIS, the alternatives for Kupreanof Island may have to be substantially modified along with the timber sale program on the Tongass National Forest. In the meantime, the management of inventoried roadless areas continues to be guided by the Forest Plan.

Southeast Alaska Transportation Plan

The Southeast Alaska Transportation Plan (March 1999) proposed no new facilities for Kupreanof Island. During the planning process, a road from Kake to Petersburg was considered but not recommended. The road would have followed the existing Forest Service roads between Kake and Twelvemile Creek, with new road segments from Twelvemile Creek to the Wrangell Narrows and a new ferry crossing at the Wrangell Narrows. Though not recommended, the Transportation Plan stated the road corridor across National Forest land should be reserved for future evaluation as travel demands grow in time.

Other Opportunities

The Forest Plan identified potential electrical power transmission corridors across Kupreanof Island. If used, they would link the City of Kake to the Tyee Transmission line that currently serves Petersburg and Wrangell. This potential project, though not expected in the near term, would most likely utilize some of the existing national forest roads.

Proposed Maintenance Level Changes for Roads on Kupreanof Island

Any changes to existing roads, whether closures or upgrades, will be incorporated into project planning with opportunities for public involvement (see Map 5).

Road Maintenance Definitions

Maintenance Strategies

Active: Roads managed under this strategy receive frequent ditch and catch basin cleaning to assure drainage, and are graded as needed to maintain the running surface. Roadside brush is cut to maintain sight distances. These roads are assigned Maintenance Level 3. This strategy is sometimes applied to Maintenance Level 2 roads when log haul is expected in the near future.

Storm-Proof: This strategy provides driveable waterbars, rolling dips, and outsloping to control runoff in case culverts and ditches are overwhelmed during a storm. Each culvert is evaluated to see where the water would go if the culvert could not carry a high flow. Roadside brush is controlled to maintain passage. This is intended to be the primary maintenance strategy applied to roads assigned to Maintenance Level 2.

Storage: Under this strategy, drainage structures such as culverts and bridges are removed or bypassed. Natural drainage patterns are restored, waterbars added, and the road is revegetated. This is intended to be the primary maintenance strategy for intermittent-use roads during their closure cycle. Isolated roads that are used infrequently are assigned to Maintenance Level 1.

Maintenance Levels

Maintenance levels define the degree of maintenance required for a road. The Operational Maintenance Level reflects current road maintenance. The Objective Maintenance Level is the desired future level of maintenance. The transition from the current maintenance level to the desired maintenance level depends on timing of future activities and available funding.

Level 1: Roads are in storage and are considered closed to motorized use. Annual condition surveys are preformed. In the past, the Forest Service allowed alder trees to grow on Level 1 roads to eliminate traffic. This policy is no longer in practice since it takes 10 to 15 years for alder to establish itself. Traffic can still use the road during this time, and may cause problems with runoff water due to wheel rutting. The current intent is to close Level 1 roads with gates or barriers and remove drainage structures. Level 1 roads remain open to all non-motorized traffic.

Level 2: Roads may be classified as either storm proof or active, depending on the amount of traffic. Generally, these 10-mile per hour local roads can be used by high clearance vehicles but not standard passenger vehicles. When logging trucks are using the road, the surface is free of waterbars, rolling dips and outsloping. In between timber sales, these surface treatments are in place to control erosion.

Level 3: Roads are open to all traffic and are maintained for standard passenger vehicles. Main roads leading into log transfer facilities and the Whiterock Road are examples of this type of road. Some of these roads have a crushed rock surface for a smoother ride and others have the typical shot rock surface. Design speeds are 20 to 30 miles per hour.

Kake Road System Recommendations

Road 6041 1.2 miles
This road accesses the North Hamilton River Redcedar Special Interest Area. The first 0.5 miles bisects the Special Interest Area, and has become overgrown with alder. The remainder of the road runs through a clearcut. Recommendation: Upgrade the maintenance level through the Special Interest Area from 1 to 2. Remove drainage structures and install waterbars beyond this area.

Road 6366 1.38 miles
This road begins near milepost 4 on the Whiterock Road. It was constructed in 1984 for timber harvest, which occurred in 1993. Recommendation: Change the maintenance level from 2 to 1, remove drainage structures and restore natural drainage patterns. This will reduce erosion potential and future maintenance costs.

Road 6332 0.8 miles
Constructed in the early 1980's, this road has become overgrown with alder. Recommendation: Change maintenance level from 2 to 1, remove drainage structures and restore natural drainage patterns. This will reduce erosion potential and future maintenance costs.

Road 45806 1.55 miles
This road was constructed in 1998, but planned for closure once the Shamrock Timber Sale was complete. Recommendation: Leave the road open in Maintenance Level 2 category until a final trailhead location is established for the potential trail to Irish Lakes. Once the trailhead is finalized, close the remainder of the road and remove all affected drainage structures.

Road 45808 3.8 miles
This road was constructed in 1997 and closed the following year after timber harvest from milepost 2.8 to 3.8. The Shamrock Timber Sale Environmental Impact Statement recommended that the road in its entirety be closed after timber harvest. However, the road has received continuous local use for hunting and sightseeing. Recommendation: Leave the first 2.8 miles open in a Maintenance Level 2 category.

Road 45006 0.3 miles
This road is located on the north shore of Hamilton Bay, extending from the Little Hamilton Log Transfer Facility to a viewpoint overlooking the bay. Locals in Kake use it for recreational purposes. Recommendation: Change maintenance level from 1 to 2, keep brush from encroaching into the roadway, and maintain drainage control.

Portage Bay Road System Recommendations

Road 6309 0.99 miles
This road is located on east side of Portage Creek.
Recommendation: Place entire road into Maintenance Level 1 category in order to reduce maintenance costs in the future. Remove all drainage structures to restore natural drainage patterns.

Road 6317 9.5 miles
These roads are located east of Todahl Creek on the northern portion of the Portage Bay road system. The entire length of Road 43000 and the last 2.1 miles of Road 6317 are located in a small old-growth habitat reserve. Both of these road segments have had all drainage structures removed within the old-growth reserve area and are no longer part of the forest road system.

Tonka Road System Recommendations

Road 6325 5.5 miles
White Alice Road. This road begins at the beach on Duncan Canal and climbs to an elevation of 2,100 feet to a decommissioned military site. The first 0.2 miles from the beach to the junction of Road 6350 is overgrown with alders and impassable to motor vehicles. The last 1.8 miles has had all drainage structures removed and is in storage. Recommendation: Brush the alders to provide access to the beach. Re-open the closed section of the road to provide recreation access to spectacular views and to the mountain top alpine area.

Road 6352 11.44 miles
This road accesses the south side of the Mitchell Creek drainage and enters an old-growth area above Duncan Canal. Vehicle traffic has increased in recent years during deer and moose hunting seasons. Recommendation: Change the maintenance level from 3 to 2. Storm-proof the road with installation of driveable waterbars and rolling dips to prevent road surface erosion. Replace the two aging log bridges to provide safe passage.

Road 6355 1.94 miles
This road parallels Wrangell Narrows south of the Tonka log transfer facility. Recommendation: Change the maintenance level from 3 to 2. Storm-proof the road with installation of driveable waterbars and rolling dips to prevent road surface erosion.

Road 6353 0.9 miles
The second half of this road is currently Maintenance Level 1, however drainage structures have not been removed. Recommendation: Place the entire road into Maintenance Level 1 category in order to reduce maintenance costs in the future. Remove drainage structures and restore natural drainage patterns.

A culvert being measured as part of a road condition survey

Vegetation and Timber

Forest Plan Timber Goal:

"Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner." (Forest Plan 2-4)

Forest Plan Land Use Designation Standards and Guidelines for Timber:

Wilderness (Forest Plan 3-19), **Remote Recreation** (Forest Plan 3-68), **Municipal Watersheds** (Forest Plan 3-74), **Old-Growth Habitat** (Forest Plan 3-80), **Semi-Remote Recreation** (Forest Plan 3-88), and **Wild River** (Forest Plan 3-103): Forested land is classified as unsuitable for timber production. Forest products usually can be obtained within these designations on a case-by-case basis.

Special Interest Area (Forest Plan 3-62) Forested land is classified as unsuitable for commercial timber production. Forest Products are available for continued Native artistic use, if not in conflict with Special Interest Area purposes.

Scenic River (Forest Plan 3-110) Suitable forested land is available for harvest if the adjacent Land Use Designation allows timber harvest.

Scenic Viewshed (Forest Plan 3-132) and **Modified Landscape** (Forest Plan 3-141): Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation. Tentatively suitable forest lands assigned to no harvest by standards or guidelines are unsuitable and are not included in the Allowable Sale Quantity calculation.

Timber Production (Forest Plan 3-149) Timber management is emphasized. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation. Tentatively suitable lands assigned to no harvest by standards or guidelines are unsuitable and are not included in the Allowable Sale Quantity calculation.

Vegetation on Kupreanof Island

The vegetation on Kupreanof Island consists of coastal temperate rainforest in a mosaic pattern of forests, muskegs, and savannah-like forested wetlands. The forest has a complex structure with many canopy layers. The dominant tree species is western hemlock, with varying amounts of Sitka spruce and Alaska yellow-cedar, depending on the fertility and wetness of the site. Sitka spruce favors more nutrient-rich and well-drained sites. Western redcedar is found throughout the southern parts of the island but is nearing its natural range on the north end of the island. The wetter areas are sparsely forested wetlands interspersed with muskegs. Shore pine and mountain hemlock are part of these forests, along with yellow-cedar and western hemlock. Mountain hemlock is also found at higher elevations near the alpine.

There are a large variety of understory and muskeg plants. Many species of blueberry occur in the shrub layer, intermixed with rusty menziesia, copperbush, and devil's club. Various species of ferns, lichens, and deciduous plants occur from ground level to high in the forest canopy. Patches of skunk cabbage occur in wet micro-sites. Much of the ground cover under the forest is a thick pad of moss over a layer of organic soil.

Natural Disturbances in the Forest

Windthrow

Wind is the primary cause of natural disturbance in these forest stands. Wind can blow down individual trees or entire stands. Storms during the fall and winter months bring strong winds from the south and southeast. The southern end of Kupreanof Island has large areas of wind disturbance, but windthrow is found throughout the island. The stands of trees resulting from these windstorms are younger and more even-aged than the older uneven-aged stands found on wind-protected areas.

Decay

In older trees, decay caused by heartwood and root-rotting fungi is very common. Decay contributes to wind-breakage and windthrow by weakening trees. Decay is prevalent in all older stands on Kupreanof Island, especially in western hemlock. Defect and decay in trees amounts to a substantial loss (often 20 to 30 percent) of commercial wood volume.

Dwarf Mistletoe

Dwarf mistletoe is common on the island. It is a parasite that occurs primarily in western hemlock, causing defect and a loss of vigor in some mature forest stands.

Yellow-Cedar Decline

Yellow-cedar trees are dying at a substantial rate on Kupreanof Island and throughout the Tongass National Forest. The cause of this decline is not entirely understood. Death of trees is usually associated with saturated soil in muskeg conditions. Dead cedar can be salvaged for many years, since the strength of the wood does not deteriorate.

Hemlock Fluting

Fluting causes deep vertical incisions on the main stem of trees. The cause of fluting has not been determined, but may be genetic. Fluting reduces the industrial value of trees for sawtimber or pulpwood. However, these trees may produce interestingly shaped cross-sections for wood plaques and other artistic uses.

Black-Headed Budworm

The black-headed budworm is one of the most destructive forest insects in coastal Southeast Alaska. Numerous outbreaks of budworm have been observed over the past few years on south and central Kupreanof Island. The worms eat the needles and cause a reduction of growth. They kill the treetops, and can kill the entire tree after several years of defoliation. Western hemlock is the preferred species for this insect.

Windthrow Uproots Trees

Asian Gypsy Moth

This fast defoliator was recently detected in the Pacific Northwest. Detection traps were placed throughout Alaska, including some on Kupreanof Island, in order to determine if this forest pest has spread. To date, no gypsy moths have been detected in Alaska. If the Asian gypsy moth becomes established in Alaska, the potential impacts to forest and riparian areas could be tremendous. Monitoring for the gypsy moth is ongoing.

Managing Forest Vegetation

The forest on Kupreanof Island provides for many important uses, both consumptive and non-consumptive. The forest provides habitat for many wildlife species, from small birds and animals to large carnivores. The canopy influences the climate for many other plant species to flourish. Wood from the trees is used by residents for personal use for fuel, building materials, and artistic and as a livelihood to provide money to purchase other items. The trees provide for a variety of wood products to meet the needs of society. The forest also provides a backdrop for local and other recreation use and enjoyment of the scenery.

The Forest Service is responsible for the management of these National Forests for the many uses for the trees. This policy of multiple-use does not mean all uses can occur on every acre, but rather a distribution of uses occurs across the landscape. Some areas are not available for timber harvest because of past legislation or designations of the Forest Plan. Other areas have an emphasis for both commercial and personal use forest products. Some areas are expected to provide some forest products but will still maintain scenic values or wildlife habitat. Timber and other vegetation is harvested from the forest on a sustainable basis.

The Forest Service keeps an active watch on forest health such as insect and disease outbreaks and maintains fire suppression.

Managing Fire

The Forest Service and the Alaska Division of Forestry provide wildfire protection for Kupreanof Island. Assistance is occasionally provided by community fire departments. When additional support is needed, the Alaska Fire Service coordinates other agencies to help. The Forest Service is responsible for suppression of wildfires on national forest and non-national forest land, including tribal, state and private lands.

Kupreanof Island is managed under three levels of fire protection called critical, full, or limited protection. Critical protection is for sites where human life or homes are present. Fires at these sites receive immediate, aggressive and continued attack to minimize damage. National Forest recreation cabins, log transfer facilities, work centers, and structures under special use permit are critical protection areas.

Full protection level covers areas of high natural resource value. The goal is to take immediate and aggressive action to limit the number of acres burned. Full protection covers non-national forest lands in the Kake area and a 500-foot strip along the entire coastline of the island.

The remainder of the island is covered under the limited protection level. This option is for areas where natural fires are beneficial or where resource values do not warrant suppression expenditures. Suppression action may be taken to keep a fire within a designated area or to protect critical sites within the area.

Wildfires in the Petersburg Creek - Duncan Salt Chuck Wilderness are managed to create the least possible disturbance and evidence of human presence. Evidence of human presence, such as campsites or fire lines will be rehabilitated.

The Forest Service has experimented with managed or prescribed fire in the past. The "Kake Bake" area burned in the 1970's as a prescribed fire that burned beyond its

boundaries. The area was planted with spruce trees, which have grown vigorously. No broadcast prescribed fire is planned in the future. Slash piles may be burned to reduce fuel hazards and visual impacts.

North Hamilton River Redcedar Cultural and Botanical Special Interest Area

The Forest Plan designated 80 acres on Kupreanof Island as a Cultural and Botanical Special Interest Area. The North Hamilton Redcedar Area includes one of the northernmost stands redcedar trees. The wood carvers of Kake identified the stand as important for subsistence and cultural uses in 1974. The Hamilton River Timber Sale, was modified to protect the redcedar stand in recognition of its importance to Kake's culture.

The Forest Plan allows for cultural and subsistence uses of the redcedar. Traditional uses of redcedar include carving, medicines, sewing materials, and construction materials.

A management plan for the Special Interest Area will be developed.

Special Forest Products

Special forest products are renewable resources such as firewood, poles, shakes, Christmas trees, boughs, cones, mushrooms, and other plants. An updated Alaska Region policy is currently being developed for the management of special forest products. At this time, permits are not required for personal or subsistence use of special forest products. Commercial permits can be obtained for a fee and don't require competitive bid at this time. Demand for special forest products is low on Kupreanof Island but is expected to increase.

Timber Management

Previous Timber Harvest

Logging began on Kupreanof Island in the early 1900's and was limited to the shoreline. Most of the early harvest was on the south and eastern shores and done by hand or A-frame logging. Many of these early harvests targeted a particular size and species of tree, mainly large Sitka spruce.

In the mid-1950's, larger-scale harvesting began on the Tongass National Forest as a market for wood was developed with the construction of several pulp mills. The purpose of the pulp mills and the long-term contracts to supply them with timber was to create a more stable economic base in Southeast Alaska than existed with the highly seasonal fishing industry. The type of harvest was almost exclusively clearcutting. Clearcutting was considered the best system to use since the southeastern Alaska tree species regenerate quickly and abundantly. This system also allowed for the easy and safe use of cable logging systems. Cable logging was necessary in most areas due to the steepness of the ground. Much of the earliest clearcutting on Kupreanof Island occurred on the southern shoreline to salvage timber that had blown down during a severe windstorm in the 1970s.

Large-scale logging southeast of Kake began in the late 1960's and timber harvest began in the Portage Bay area and South Lindenberg area in the early 1980's. Harvest began on the Bohemia Mountain Sale in 1994 around Portage Bay and at the end of Road 6030 (the White Road) east of Kake. The Shamrock Timber Sale extended Road 6314 and harvested timber south of Kake in 1997 and 1998. Some small sales from the South Lindenberg EIS were harvested in the late 1990's off the existing road system that connects to the Tonka LTF. The ATC, Bo, and Scattered Sales east of Portage Bay were harvested in the late 1990's.

The privately owned timber lands around Kake have been logged, beginning in the 1980s and continuing on today.

Alternatives to Clearcutting

The Forest Service recently has moved away from using clearcutting as the primary method of harvest. This began by leaving some residual trees in units in the Bohemia Mountain and Shamrock Timber Sales. The Alternative-to-Cutting Research Study explored other

harvest levels that left varying amounts (from 5 to 75 percent) of trees in a variety of harvest patterns. This study was harvested in 1999 and the effects will be studied over the next several decades. To comply with the new Forest plan guidelines, other timber harvest units have large trees left for marten habitat. Unmerchantable trees are left where possible to provide a more diverse stand structure in the future. The Todahl Backline Sale on the northeast side of Kupreanof Island consists exclusively of small patch cuts spread over a large area.

Alternatives to Clearcutting Research Study

The Forest Service has begun an Alternatives-to-Clearcutting (ATC) study on the Tongass National Forest. Kupreanof Island is one site chosen to complete a timber sale and incorporate the study.

The study started in 1994 in response to the Forest Service's Ecosystem Management Initiative and the direction to reduce the amount of clearcutting on the National Forests. Results of the ATC study will assist natural resource managers by providing essential information on the effects of adopting alternative harvest systems.

This study has two parts. The first is a look at stands that were partially harvested from 1900 to present. Researchers found over 270 of these stands throughout Southeast Alaska and studied 18 stands in detail. Their research will help answer questions such as:

How well did the remaining trees grow and resist damage from windstorms and diseases like mistletoe and heart rot?

How many new trees began to grow in the openings created by logging, how well did they grow, and which species prevailed?

Do the plants that grow on the forest floor (especially those species that provide high-quality food for deer) continue to thrive or are they shaded out by growing trees?

The second part of this study is an experimental test of several silvicultural systems ranging from even-aged management with clearcutting to uneven-aged systems that use single-tree or group selection cuts. In addition to studies on trees and understory plants, the experiments will test effects on groundwater, slope stability, birds, small mammals, headwater stream productivity, visual quality, and social acceptance.

Researchers have created a total of three experimental installations across the Tongass National Forest. Each area consists of eight harvested blocks and an uncut block to compare as a control. Each block is about 40 acres in size and has approximately the same slope and aspect. The experimental stands on Kupreanof Island are south slopes of the Missionary Range.

Harvest occurred in 1999. Preliminary results will not be available for several years after timber harvest. In the interim, alternative silvicultural systems that best meet Forest Plan direction will be used.

Young-Growth Management: Thinning and Pruning

Past timber harvesting on Kupreanof Island has produced about 19,000 acres of young-growth timber stands. These stands are now mostly pole-sized timber (five to nine inches in diameter), with some stands of seedlings-saplings (less than five inches in diameter). The value of these stands for timber production and wildlife forage is being improved through the use of thinning and pruning.

Thinning removes some trees so others can grow faster. It also allows more light to penetrate the canopy, which stimulates the growth of plants and shrubs on the forest floor. These plants provide forage for deer and moose.

Young-growth stands should be thinned when they are 25 to 30 years old. Thinning should be done when there are still some understory plants available for wildlife forage but before the trees become too big to fall without damaging the other trees.

Pruning removes the lower branches from trees, producing timber with fewer knots and higher quality. It allows more light to penetrate the canopy, which encourages growth of forage plants. Pruning provides indirect sunlight to the understory plants that provide wildlife forage.

The commercial harvest of young-growth timber has been limited in Southeast Alaska to date due to the small size of the trees, lack of a market for small logs, and high logging cost. Currently the oldest young-growth stands are about 50 years old. Commercial harvest of these stands will not likely occur in the near future. However, scientists from Forest Service research centers are working to develop different products from young-growth timber and timber markets may change to allow for more commercial harvest of the young-growth.

National Forest Lands Available and Suitable for Harvest on Kupreanof Island

Only about 11 percent of the land on Kupreanof Island is classified as suitable for timber harvest due to many factors such as Forest Plan direction, legislation, other land ownership, and the large amount of forest land classified as unsuitable land for timber harvest. See Table 15 and Map 6.

National Forest lands that are suitable for timber harvest are lands capable of producing at least 20 cubic feet per acre each year of timber of commercial use on lands designated for timber production. They may not be in areas legislatively withdrawn from timber harvest, such as Wilderness or in areas that have uses other than timber harvest as determined by the Forest Plan.

The Forest Plan defines where timber management may occur by assigning land use designations (LUDs) to all National Forest lands. Many LUDs do not allow commercial timber harvest. These LUDs may contain lands capable of producing commercial timber but are managed for other resource uses. LUDs not available for commercial timber harvest are called non-development LUDs. On Kupreanof Island, non-development LUDs total about 278,800 acres and include Wilderness and Wilderness Wild River, Remote Recreation, Municipal Watersheds, Old-growth Habitat, Semi-remote Recreation, Special Interest Area and Wild Rivers.

LUDs located on Kupreanof Island that permit timber harvest are Scenic Rivers, Scenic Viewshed, Modified Landscape, and Timber Production. These development LUDs cover about 337,000 acres on Kupreanof Island.

The Forest Plan has also placed the northern part of Kupreanof Island and the South Lindenberg Peninsula in a 200-year rotation.

Much commercial timber within development LUDs is not available for timber harvest. This timber is located within beach, estuary, or stream buffers, or on unstable slopes.

Table 15. Acres of Non-forest, Forest, and Suitable Timber on Kupreanof Island

	Total Acres	National Forest Lands (acres)	State and Private Lands (acres)	National Forest Lands Suitable[5] for Timber Harvest (acres)
Non-forested[1]	57,500	52,700	4,800	Not applicable
Non-commercial forest[2]	330,700	319,100	11,600	Not applicable
Young-growth[3]	47,800	19,000	17,100	11,700
Productive old-growth[4]	359,700	262,100	28,000	69,600
Totals	795,700	652,900	61,500	81,300

[1] Non-forested - Land that has never supported forests and lands

[2] Non-commercial forest - Forest that has neither economic value at this time nor anticipated timber value within the near future.

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

[4] Productive old-growth - Old-growth forest capable of producing at least 20 cubic feet of wood fiber per acre per year, or having greater than 8,000 board feet per acre.

[5] Suitable for timber harvest -Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions, and for which there is reasonable assurance that such lands can be adequately restocked, and for which there is management direction that indicates that timber production is an appropriate use of that area.

A Sustainable Supply of Timber

The management of timber from national forests is designed to provide a continuous supply for the use by the citizens of the United States. The use will be on a sustained yield, even-flow basis in order to permit a stable economic environment for communities. Timber harvesting will be coordinated with other resources in multiple-use management, and will consider the constraints of the environment conditions.

Although the National Forest Management Act provided for the sustained, even-flow of timber to ensure a stable economic situation, there have been two laws that related directly to the supply of timber from the Tongass National Forest:

Alaska National Interest Lands Conservation Act of 1980 (ANILCA). ANILCA set the allowable sale quantity at 450 million board feet for the Tongass National Forest. It also includes a stipulation to report the effects of Wilderness designation on the forest products, tourism, and fisheries industries in Southeast Alaska.

Tongass Timber Reform Act of 1990 (TTRA). The TTRAA replaced the allowable sale quantity of 450 million board feet established by ANILCA with direction to "seek to meet" demand for Southeast Alaska timber.

The Forest Plan determines the sustained use of the timber supply for the entire Tongass National Forest using rotation age of the timber stands. Rotation age varies according to Forest Plan direction and site productivity and varies from 80 to 200 years or greater. The amount of timber which can be harvested from the Tongass Forest is set in the Forest plan as the allowable sale quantity (ASQ).

The Forest Supervisor is responsible for selecting sale areas available to meet Forest Plan goals, one of which is to maintain an even flow of timber available for purchase to provide a sustainable and stable timber supply to industry. To do this, a plan that lists scheduled sales for a period of at least three years, and more often ten years, is maintained. The approximate amount and location of timber planned for harvest is determined in the Timber Sale Schedule, which is reviewed and updated at least annually. The actual amount of timber to be offered from the Tongass depends on market de-

mand and funding levels and is subject to the influence of economic cycles, catastrophic events, community dependency, and resource needs. Timber harvest is scheduled on Kupreanof Island from suitable timber lands.

The amount of timber harvest planned in an area at a given time is often affected by the amount of road and log transfer facilities needed or available for use. Areas that are not roaded generally have an initial large first entry harvest to offset the associated high road costs. Other reasons for larger sales include the use of expensive helicopter logging. Both of these considerations involve offering more timber to make the sale economical for an operator. Since a complete transportation system is still being developed on Kupreanof Island and the terrain lends itself to the use of helicopter logging, large sales are expected to occur.

After the road system is in place, there is more opportunity for smaller sales. The road systems connecting to Kake and on the South Lindenberg Peninsula have several small sales planned because of the existing road systems and the proximity to communities.

Timber Volume Pools

The timber sale program involves four "pools" of timber volume. These are:

Timber volume under analysis: This is the timber volume that is undergoing environmental analysis and public scoping under the National Environmental Policy Act (NEPA). It may be two or more years before it is available for sale.

Timber volume in appeals and litigation: Action is deferred on these sales as a result of administrative appeals or litigation. This volume is not available for sale. Volume may remain in this stage from 60 days to four or more years.

Timber volume available for sale: Environmental analysis is complete and any appeals and litigation is resolved. Managers need to maintain enough volume to be able to schedule future sale offerings to meet the needs of the operators. The Forest Service attempts to announce probable future sales at least one year in advance.

Timber volume under contract: This consists of sales that have been offered and contracts awarded to purchasers, but are not yet harvested. Forest Service practice is to maintain about two to three years of unharvested timber under contract. This gives timber purchasers sufficient lead-time to plan operations, stage equipment, and construct roads prior to harvest.

Use of National Forest Timber

Forest Service policy provides several authorities for providing National Forest timber for use.

Alaska Free Use (35 CFR 223.10): Bona fide settlers, miners, residents, and mineral prospectors in Alaska may take 10,000 board feet or 25 cords per person per year of green or dead timber from the National Forests in Alaska free of charge for personal use but not for re-sale. Dead timber may be taken without a permit, while green standing timber requires a permit.

Federal Free Use (FSM 2462.2): This authority allows the Forest Service to offer timber to other agencies of the federal government including the military.

Administrative Free Use (FSM 2463.02): This authority allows use of timber up to one million board feet without charge for:

- Improvements of value to the National Forest or other federal land,
- Fuel for camps operated by the Forest Service or other federal agencies,
- Research and demonstration projects,
- Disaster relief work conducted by public agencies, and
- Multiple-use enhancement projects that result in protection or improvement of the National Forest.

Administrative Use Sales (FSM 2463.1): This authority allows timber harvest when used for administrative purposes without direct benefit. Appraised value is used but less than minimum rates may apply.

Commercial Use (FSM 2430.3):

This policy calls for designing an orderly program of timber sales. Sales are planned to obtain regular harvest of National Forest timber using harvest prescriptions and staying within allowable sale quantities as determined by the Forest Plan. A variety of sale sizes should be developed to meet local industry and resource needs. Short-term sales are preferred, if efficient, to reduce the risk of market changes. Salvage sales are encouraged. The commercial timber sale program is guided by Forest Plan resource management objectives and salvage needs.

Commercial sale size is determined either by volume or area. The duration of the sale is determined by the timber volume, the size of the transportation system to be developed, and timing restrictions to protect fish and wildlife. Most timber sales have a duration of three to five years.

Commercial timber is usually sold by competitive bid. Bids may be given at an oral auction or by sealed envelope.

There are several types of timber sale contracts. Payment for the timber is made either on the scaled volume, which is measured after the timber is harvested (contract FS-2400-6), or the cruised volume, which is measured by the Forest Service before the sale is offered (contract FS-2400-6T). These contracts include many clauses that provide for protection of various resources to comply with the Forest Plan and laws. The sales are administered to ensure compliance with contract provisions.

Smaller sales with fewer environmental impacts may be sold with a FS-2400-3 contract. These contracts are used when no permanent roads will be built and the contract period is less than two years.

Very small quantities of green timber, commercial firewood, and special forest products are sold with FS-2400-4 contracts, also known as greensheet sales. These sales can be sold either with or without bids depending on demand. This type of contract is used for miscellaneous forest products sales up to $10,000 value. The length of the contract is one year.

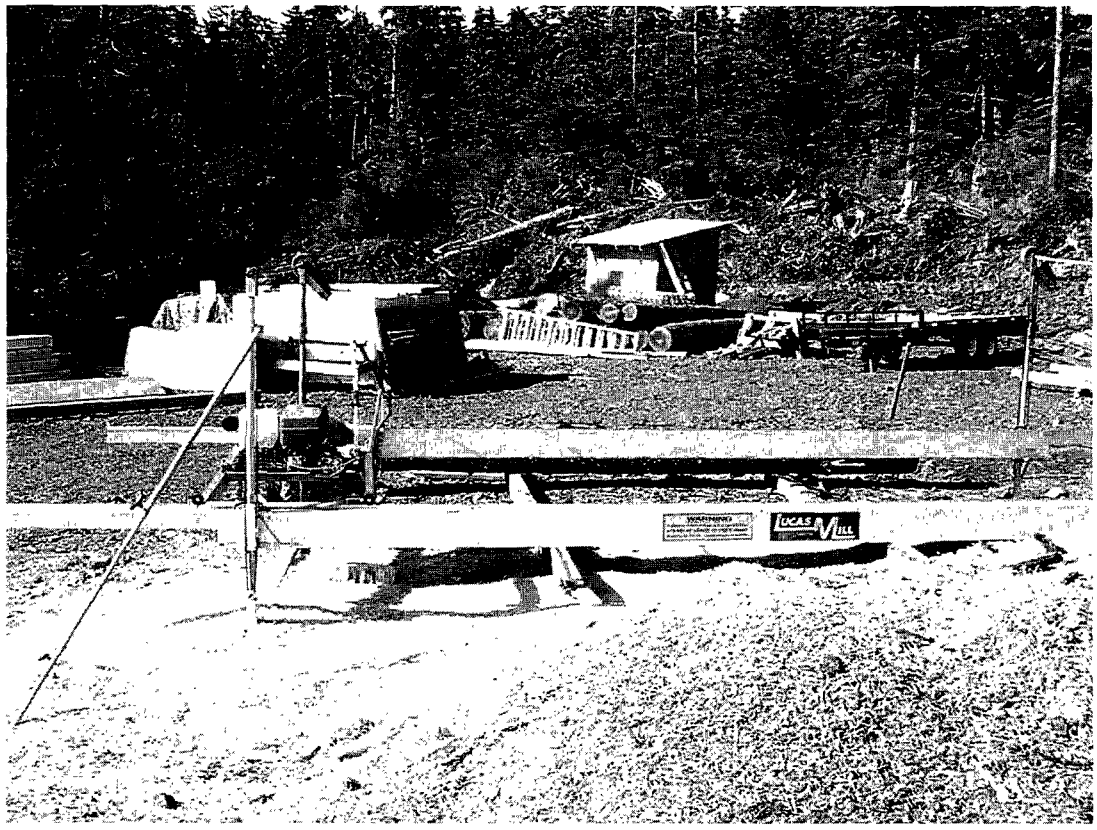
Small Business Administration Program

Section 105, Small Business Set-aside Programs, of the Tongass Timber Reform Act states that the Secretary of Agriculture in consultation with the Small Business Administration shall: "seek to provide a supply of timber from the Tongass National Forest to those purchasers qualifying as 'small business concerns' under the Small Business Act as amended (15 USC 631 et seq.)."

The Forest Service and the Small Business Administration jointly agree to an annual set-aside goal for the Tongass National Forest to facilitate the development of competitive enterprises and timber markets. This agreement can be modified if markets change.

A small business is defined by the Forest Service as a business concern that is:

- Primarily engaged in logging or forest products industry.
- Independently owned and operated.
- Not dominant in its field of operation.
- Does not employ more than 500 people.
- Agrees to sell not more than a specified percent of set-aside timber to a non-small business.
- Agrees to manufacture forest products at its own facilities or other small businesses.



A Lucas mill at Kake, Alaska

Value-added Processing

Value-added processing is a term that has different meanings to people. Some people think of value-added products as only those specialty products, such as musical instruments, carvings, and hand-made furniture. Others consider value-added as anything that is done to raw material, such as a standing tree, that makes the product more valuable in the market place. Recent workshops, discussion, and research have focused on value-added products that include a diverse range of industries to use all species and qualities of trees to help create stable economies in small communities throughout Alaska.

The location, amount and products to be produced from the timber is a business decision made by the purchaser of the timber, and is largely dependent on their capabilities and market demand. The Forest Service has minor influence over these decisions by using export restrictions, participating in the small business set-aside program, and providing a range of sale sizes.

One of the purposes of the timber sale schedule is to help businesses plan for a continuous supply of timber, which is essential for a processing business to economically compete in the marketplace.

One of the most recent developments to support the knowledge and information transfer that small businesses need to be able to compete in value-processing markets is the formation of the Alaska Wood Utilization Research and Development Center in Sitka, Alaska. The objective of this center is to identify and evaluate the opportunities for viable forest products industries in Alaska. The emphasis will be on: assessing opportunities to manufacture and use Alaska forest resources, assessing market conditions and Alaska's competitiveness, and assessing the link between economically successful and sustainable industries and the forest management objectives of federal, state, and private timber owners. The center holds workshops and is conducting research in value-added processing.

Forest Service Log Export Policy

Unprocessed timber from National Forest lands in Alaska may be not be exported from the United States or shipped to other states without prior approval of the Regional Forester. There are many factors involved in the export approval process.

A new log export policy went into effect in July of 1998. This policy makes western redcedar more available for local manufacturing with more controls on export. Before redcedar can be exported to the lower 48, it must be proven that it is not possible to sell redcedar logs in Alaska at reasonably competitive prices. Likewise, redcedar cannot be shipped overseas until the inability to sell it competitively in lower 48 states is proven.

The export of Alaska yellow-cedar logs will continue to be allowed with approval of the Regional Forester.

Sitka spruce and western hemlock sawlogs cannot be exported. However, spruce and hemlock utility logs may be exported if there is no local market. Local markets for utility logs are currently limited due to the closure of the pulp mills in Sitka and Ketchikan.

Community Assistance Programs

State and Private Forestry (S&PF) is a branch of the Forest Service that works cooperatively with communities, Native corporations, and private landowners to protect and improve natural resources and communities. Programs such as Urban and Community Forestry, Forest Stewardship, Economic Action, Cooperative Fire Protection, and Forest Health Protection, are sponsored jointly by S&PF and the Alaska Division of Forestry, with cooperation from other state agencies. Each of these programs has several focus areas designed to increase land and community health.

Programs most familiar to Kupreanof Island communities are economic action programs.

These programs provide technical and financial assistance. Kake has used the Economic Diversification Studies Program, designed to assess the feasibility of a project before starting it; the Rural Development Program for individual projects; and the Economic Recovery Program designed to assist communities affected by natural resource management decisions. The City of Kupreanof will participate in the Economic Recovery Program for the first time this year.

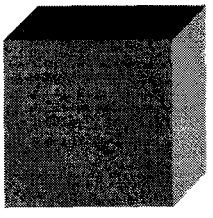
Economic action programs help communities develop local skills and abilities to determine their own economic future. These programs encourage community-wide development of action plans and project priorities. Locally established action teams determine which projects would best serve the community, and determine what type of economic base the community should attempt to establish. The Forest Service seeks to assist, rather than lead a community in their economic diversification efforts.

Board Feet Compared to Cubic Feet Measurements

The Forest Service has traditionally used board foot measurement for timber sales. In the last few years, however, cubic foot measurement has been used. A board foot is 12 inches by 12 inches by one inch. A cubic foot is 12 inches by 12 inches by 12 inches. One cubic foot does not equal 12 board feet, however. The ratio between board feet and cubic feet depends on the amount of taper in a log. Taper is the difference between the smallest diameter and the largest diameter of the log. Ratios for converting board feet to cubic feet are determined by tree species. On the Tongass National Forest, the cubic foot to board foot ratio varies between about four to six board feet per cubic foot.

Why is the cubic-foot unit a better measurement for wood products? Cubic foot measurement is more consistent and is independent of any end product designation. Board foot was more useful when most of the timber harvested was sawn into lumber. Now, more products are made from wood chips, such as particle board. In addition, cubic foot is more consistent for weight measurement that is used for payment of scaled sales (contract 2400-6), and is easily converted to metric feet, which the Forest Service will be using in the future.

One Board Foot = 1 foot x 1 foot x 1 inch



One Cubic Foot = 1 foot x 1 foot x 1 foot

Current Timber Projects

- Bohemia Mountain Timber Sale (35.5 mmbf)
- Alternatives-to-Clearcutting Research Study (Experimental harvest to study the effects of various harvest prescriptions.) (8.5 mmbf)
- Bo Timber Sale (2,230 ccf)
- Shamrock Timber Sale (24.3 mmbf)
- South Lindy One Timber Sale (3,284 ccf)
- Dakota Timber Sale (616 ccf)
- South Lindenberg Timber Sale (10.6 mmbf)
- Todahl Backline Sale (7.0 mmbf)
- Scattered Timber Sale (5.0 mmbf)
- Four-Leaf Timber Sale (45,165 ccf)
- Goose Timber Sale (2,615 ccf)

On-going Timber Projects

- **Sales on Lindenberg Peninsula**. Eight to ten small sales of up to 2 MMBF and one larger sale of 10-12 MMBF will be offered from the remaining volume from the South Lindenberg EIS through 2004. These sales will be partial harvested by shovel or cable and will include reserve trees in the units to provide future stand structure and to comply with Forest Plan standards and guidelines.
- **Douglas Timber Harvest**. This project is currently being analyzed for timber harvest in the Douglas Timber Sale EIS. The project area is located in southern Kupreanof Island and includes part of VCU 429, and VCUs 430, 431, 432 and 433. (See Maps 6 and 8.)
- **Small Sales**. Several areas on the existing Kake road system are being considered for small sales. These sales will be in varying amount of less than one million feet.
- **Timber Salvage**. Timber salvage will be considered if areas of blowdown or mortality occur.

Possible Timber Projects

The following areas are where timber harvest is compatible with the Forest Plan. These areas will be considered for harvest in the future in order to achieve the objectives of the Forest Plan. Whether timber harvest is planned in these areas will depend on the results of preliminary analysis that considers future timber demand, sale economics and environmental factors. The actual amount and location of timber harvest will be determined in future project analysis.

- North shore of Kupreanof from Kake to Five mile Creek, except in Old-growth or Semi-Remote LUD. Timber harvest on a 200-year rotation except in Old-growth or Semi-Remote LUDs.
- North central Kupreanof island, except in Old-growth or Semi-Remote LUDs. Timber harvest on a 100-year rotation.
- South Lindenberg Peninsula, except in Old-growth LUD. Timber harvest on a 200-year rotation.

- Northwest of Duncan Canal, except in Old-growth or Semi-Remote LUDs. Timber harvest on a 100-year rotation.
- Kah Sheets Creek drainage, except in Old-growth, Semi-Remote, or Wild River LUDs. Timber harvest on a 100-year rotation.
- Central Kupreanof, except in Old-growth LUD. Timber harvest on a 100-year rotation.
- Totem Creek drainage and north of Douglas Bay, except in Old-growth LUD. Timber harvest on a 100-year rotation.

The following are timber harvest projects currently on the Ten Year Timber Sale Schedule. The sale schedule is revised annually to remove completed sales and to add the "eleventh" year sales. It is also adjusted for timber market demand, sale scheduling and funding conditions.

Scott Peak Project located on the northeast portion of Lindenberg peninsula.

North Kupreanof Project located to the west of Portage Bay.

Central Kupreanof Project located in the middle of the island adjacent to the road system.

Portage Bay Project located on the east side of Portage Bay.

Todahl Cable Project located along the road system on north Lindenberg peninsula.

West Mitchell Project located on South Lindenberg peninsula.

SE Kupreanof Helicopter Project on the southeastern end of the island.

Kake Second Growth Project near Kake.

Duncan Valley Project to the west to Duncan Canal on South Lindenberg peninsula.

Wildlife

Forest Plan Wildlife Goal:

"Maintain the abundance and distribution of habitats, especially old-growth forests, to sustain viable populations in the planning area. Maintain habitat capability sufficient to produce wildlife populations that support the use of wildlife resources for sport, subsistence, and recreational activities." (Forest Plan 2-5)

Forest Plan Land Use Designation Standards and Guidelines for Wildlife:

Wilderness (Forest Plan 3-22) Conduct wildlife habitat improvement projects only when the principal objective is to protect or restore the wilderness resource, or to assist in the recovery of a federally listed threatened or endangered species. Wildlife Management will be consistent with wilderness objectives.

Remote Recreation (Forest Plan 3-68) Wildlife habitats are generally subject to ecological changes only. Indigenous species are maintained. Habitat improvement projects are acceptable if designed to emulate natural conditions and appearance.

Municipal Watershed (Forest Plan 3-75) Manage wildlife habitat for uses compatible with the watershed management objectives.

Old-Growth Habitat (Forest Plan 3-81): Maintain contiguous blocks of old-growth habitat reserves to support viable and well-distributed populations of old-growth associated species. Allow previously harvested or natural early stand stages to develop into old-growth habitats; provide management to accelerate attainment of old-growth characteristics.

Semi-Remote Recreation (Forest Plan 3-83) **and Scenic River** (Forest Plan 3-111) Wildlife habitat improvements may occur.

Wild River (Forest Plan 3-103) Allow wildlife habitat improvements where their principal objective is the protection or restoration of Wild River resources, and enhancement of outstandingly remarkable values.

Scenic Viewshed (Forest Plan 3-134) Select Management Indicator Species appropriate to the project area for project analysis. Coordinate all activities and road management with consideration for the needs of wildlife. Use the habitat needs of Management Indicator Species to evaluate opportunities for, and consequences on, wildlife. In project planning, consider opportunities to allow for the elevational migration of wildlife. Consider silvicultural techniques that establish and prolong understory forb and shrub production in important habitat areas.

Modified Landscape (Forest Plan 3-143) and **Timber Production** (Forest Plan 3-150): Select Management Indicator Species appropriate to the project area for project analysis. Coordinate road management with the needs of wildlife. Use the habitat needs of Management Indicator Species to evaluate opportunities for, and consequences on, wildlife. In project planning, consider opportunities to allow for the elevational migration of wildlife.

Key Wildlife Considerations

The Forest Plan considered the habitat needs of key wildlife species in the development of guidelines for activities on the Forest. On Kupreanof Island, deer, moose, wolf, marten, goshawks, other raptors and waterfowl substantially influence project planning, for the following reasons:

- The Sitka black-tailed deer population receives the highest sport hunting and subsistence use of all terrestrial species in Southeast Alaska. Deer are the main subsistence food for the people of Kake, and public comments indicate a strong desire to maintain a huntable population of deer on Kupreanof Island.
- The viability of the Alexander Archipelago wolf has been a public concern in recent years. Suitable habitat for deer, their main prey species, equates to suitable habitat for wolves. Managing wolf populations may require road closures to prevent overharvest.
- Marten are a species that require old-growth habitat. Since they are easily trapped, roads may need to be closed to prevent overharvest.
- The goshawk is another species that has garnered special attention lately because of public concern. Their habitat needs may be compromised by roads and some timber harvest methods.
- General concern has been expressed about other raptor species, especially osprey, eagles, red-tailed and sharp shinned hawks. The standards and guidelines prescribed in the Forest Plan give adequate protection to these species habitat requirements.
- Waterfowl migrate across Kupreanof Island along several pathways, supporting a popular fall sport harvest. Wetlands on the island provide important nesting and brood rearing habitat for ducks and geese.
- Moose have migrated to Kupreanof Island over the past half century, becoming more important to hunters. New roads may access undisturbed moose populations, so considering road closures may be important for moose populations as well as hunters.

Deer

Important deer winter range is required by the Forest Plan to be identified and considered during project planning and environmental analysis. A minimum deer habitat capability of about 17 deer per square mile should be maintained to provide enough food resource to sustain wolf populations (see Wolves below) and to provide for continued sport and subsistence hunting opportunities. The Forest Plan did not develop a land use designation specifically for deer winter range. Nevertheless, protecting important deer winter range was a consideration in the development of old-growth habitat reserves.

An interagency team developed small, old-growth habitat reserve recommendations for Kupreanof Island. Some small reserves have been recommended for redesign to provide greater protection of deer habitat and subsistence hunting opportunities. Decisions on the final location and boundaries of the reserves will be addressed during project planning. Old-growth Habitat Reserves are described in more detail later in this chapter.

The 1999 Forest Plan ROD added a deer habitat standard and guideline, assigning a 200-year rotation age to timber in areas where deer habitat is a concern. These areas include the northern portion of Kupreanof Island bordering saltwater from Kake to Petersburg, or Wildlife Analysis Areas 5132, 5135, 5136 and 5138. A Wildlife Analysis Area (WAA) is a division of land used by ADF&G for wildlife analysis.

Wolves

Forest Plan standards and guidelines require the assessment of wolf mortality due to Forest Service roads. Where wolf population and harvest data suggest that wolf mortality exceeds sustainable rates, the Forest Plan directs the Forest Service to work with the Alaska Department of Fish & Game (ADF&G) and the U. S. Fish & Wildlife Service (FWS)

to identify sources of mortality. Where road access has been determined to significantly contribute to wolf mortality, road closures should be implemented. Road densities of less than 0.7 miles per square mile may be necessary to reduce mortality to sustainable levels. On an island-wide basis, the road density on national forest lands on Kupreanof Island is currently 0.05 miles of road per square mile, well below the Forest Plan threshold.

All three agencies have agreed that a minimum deer habitat capability of about 17 deer per square mile will provide a sufficient food source to maintain sustainable wolf populations and a continued deer harvest by humans. Project-level analysis of habitat capability will be conducted at an appropriate scale.

Forested buffers of 1,200-foot radius should be established around all active wolf dens according to the Forest Plan. Road construction within the buffer is discouraged. No road construction should be permitted within 600 feet of a den unless landforms or other factors will alleviate potential adverse disturbances. If dens become inactive, buffers are no longer required.

Currently, ADF&G and the Forest Service are conducting a radio telemetry study of wolves on Kupreanof Island. The objectives of this study are to estimate wolf populations, identify key habitat areas used by wolves, and determine home range size and movement patterns of wolf packs. The information gathered will be used in evaluating the effects of management activities on wolf populations on Kupreanof Island.

Marten

The Forest Plan has identified Mitkof/Kupreanof biogeographic province as a higher risk area for marten. As such, the retainment of forest structure in high-volume old-growth stands that are below 1,500-foot elevation is required. This type of forest is high-value marten habitat, and retaining structure is important for marten survival. The Forest Plan specifies a number of living and dead trees be left in harvest units to provide structure. High-value marten habitat will be located and forest stand prescriptions developed during project planning.

The Forest Plan requires the assessment of marten mortality due to Forest Service roads. Where marten mortality concerns have been identified, the Forest Service will work with the ADF&G to identify sources of mortality. Where road access has been determined to significantly contribute to marten mortality rates, road closures may be implemented. Road management objectives, including closures if needed, would be developed and implemented through an interdisciplinary process during project planning.

A radio-telemetry study is being conducted on Mitkof and Kupreanof Islands to verify marten computer model information and to improve management techniques.

Goshawks and Other Raptor Species

Goshawks likely have adapted to forest processes as gap dynamics and catastrophic windthrow events and the resulting fine and coarse scale seral stand mosaic, as evidenced by their apparent long-term presence in Southeast Alaska. Thus, the assumption is made that the more closely active forest management emulates the size, frequency and intensity of natural forest dynamic processes in time and space, the more suitable the resulting combination of stand structures will be to sustain goshawk populations.

Based upon the analyses of the Forest Plan, a sufficient amount and distribution of habitat will remain to maintain a viable and well-distributed goshawk population across the Tongass after 100 years of Forest Plan implementation. This is likely to have increased because of the new 1999 ROD and the changes in land use designations and the addition of the 200-year rotation.

Osprey, red-tailed hawks and sharp shinned hawks are also present on the island. Land Use Designations such as the Riparian, Beach and Estuary, and Old Growth give

adequate protection along with the 200-year rotation prescriptions.

Other Species

Recently, a mountain lion was trapped on Kupreanof Island. This is a species not normally associated with the habitat found in Southeast Alaska. This species, along with the brown bear, fisher and wolverine are incidental species that periodically move through the area. We would not expect to see them but it is always possible that one or two errant individuals will be on the island.

Waterfowl

The Forest Plan provides for buffers around many key waterfowl areas, including beaches, estuaries, streams and lakes. Beaches and estuaries will be buffered by 1,000-foot-wide areas of unmodified forest. Fish-producing streams will be protected by 100-foot buffers. The Forest Plan calls for riparian management areas for all Class I, II, and III streams. Lakes that are three acres or larger will have a 100-foot no-cut buffer. Lakes less than three acres will have a buffer considered on a site-specific basis. A 330-foot buffer is specified between human activities and areas that receive significant waterfowl use during spring, winter, or fall, or areas that are nesting, brood-rearing, or molting habitat. Significant waterfowl areas will be identified during project analysis.

As part of the interagency old-growth reserve recommendations, a small reserve around Goose Lake, if adopted, would maintain a waterfowl area near Kake in a natural setting.

Many key waterfowl areas on Kupreanof Island are within non-development land use designations (LUDs) and so will be maintained in a natural setting. These areas include:

- Rocky Pass - Semi-Remote and Remote Recreation LUDs
- Petersburg Lake - Wilderness and Wild River LUDs
- Irish Lakes - Semi-Remote Recreation LUD
- Towers Lake - Semi-Remote Recreation LUD
- Kah Sheets Creek and Lake - Wild River (5 miles) and Scenic River (4 miles) LUDs
- Castle River - Wild River LUD
- Duncan Canal - Semi-Remote Recreation and Old-Growth Habitat LUDs on most of the western boundary of Duncan Canal. The eastern boundary is designated mostly as Wilderness or Old-Growth Habitat LUDs
- Green Rocks Lake - Old Growth Habitat LUD
- Kushneahin Creek and Lake - Wild River LUD

Old-growth Habitat Reserves

The old-growth habitat reserve (OGR) system established by the Forest Plan is made up of non-development land use designations intended to provide for viable and well-distributed wildlife populations. About 36 percent of National Forest lands on Kupreanof Island, or 278,800 acres are in non-development land use designations. As part of this system, small old-growth reserves were added to watershed areas (referred to as Value Comparison Units, or VCUs) that had no other substantial nondevelopment land use designations.

Small Old-Growth Reserves

The Forest Plan established 18 small old-growth reserves on Kupreanof Island, distributed among 16 VCUs and totaling slightly more than 58,000 acres. The remaining 12 VCUs did not require small reserves, either because they had sufficient non-development LUDs within the VCU, or because they were too small to warrant a small reserve.

The Forest Plan guidelines are that 16 percent of the total area of VCUs requiring a small reserve be placed in a small reserve, and that at least 50 percent of those acres be composed of productive old growth. Because of natural variations in the forest stand structure, the Forest Plan recognized that it may not always be possible to design reserves containing 50 percent productive old growth.

An assessment showed that seven VCUs on Kupreanof Island did not meet the minimum criteria set forth in the Forest Plan (see Table 16)

Table 16. VCUs not meeting minimum criteria for small old-growth reserves.

VCU	Reason Minimum requirements were not met
425	(short 460 acres of productive old-growth and 1019 total acres)
426	(short 639 acres of productive old-growth)
436	(short 185 total acres)
440	(short 106 acres of productive old-growth)
442	(short 36 acres of productive old-growth and 754 total acres)
444	(short 47 acres of productive old-growth)
446	(short 97 total acres)

As part of the Forest Plan Record of Decision, the Forest Service made a commitment to work with Federal and State agencies to locate small old-growth habitat LUDs.

The Petersburg Ranger District worked collaboratively with biologists from the U. S. Fish and Wildlife Service and the Alaska Department of Fish and Game to review the locations and sizes of the small OGRs on Kupreanof Island. The biologists reviewed all small reserves to see if boundary changes were beneficial.

Table 17. Non-development Land Use Designation and Small Reserve Acreages on Kupreanof Island

Land Area	Total Acres	Acres of Productive Old Growth (POG)
National Forest Land	634,445	272,433
Small Reserves	58,318	28,245
Non-development LUDs other than Small Reserves	170,794	72,137
Small Reserves and Undeveloped LUDs combined	229,112	100,382

Some of the proposed changes became unnecessary when a modified Forest Plan ROD was issued in April 1999. The new ROD gave the Mitkof/Kupreanof biogeographic province more protection. Only 38 percent of this province is in productive old growth. By changing 42 wildlife analysis areas to 200-year rotation management, better connectivity between old-growth reserves was provided. By changing many areas to non-development designations, the amount of old-growth protection was increased. VCU's 430, 431, and 436 are now in non-development LUDs that preserve old growth, negating the need to modify the small old-growth reserves.

The interagency design recommendations for small old-growth reserves are conceptual, allowing final boundaries to be identified during project planning. The rationale for the final small reserve designs will be described in NEPA documentation for individual projects. The small old-growth reserve for VCU 443 has already been modified during the environmental analysis for the Todahl Backline Timber Harvest EA.

Medium and Large Old-Growth Reserves

The Forest Plan did not foresee changes to the large and medium reserves. VCU 424 lies in WAA 5135. This is one of the Wildlife Analysis Areas moved into the 200-year rotation by the 1999 ROD. In addition, the western portion of VCU 424 was place into the non-development designation of Semi-Remote Recreation which, when added to the existing Medium Old-Growth Habitat Reserve, exceeds the acreage required in the Forest Plan for this size reserve.

Forest Connectivity

Forest connectivity refers to the existence of older forest habitat between large and medium old-growth habitat reserves. This allows species that require forest habitat the ability to travel between reserves. Connecting old-growth reserves with forested areas is an important aspect of the forest-wide wildlife viability strategy.

Estuary and beach fringe areas and riparian areas enhance connectivity and retain some old-growth characteristics outside of the old-growth reserves. Uneven-aged and two-aged timber management could also retain connectivity and old growth characteristics in managed areas particularly in scenic viewsheds.

The Forest Plan does not require connectivity among all small reserves or between small reserves and other non-development LUDs including large and medium reserves. Productive old-growth forest occurring within other features of the landscape, such as beach fringe, riparian areas, and other non-development LUDs contribute to overall landscape connectivity in the evaluation. However, planning efforts should consider opportunities to maintain connectivity. It is anticipated that there will be a need to provide additional corridors only in rare situations.

The Forest Plan does provide criteria for connectivity for medium and large reserves, "connection in one direction is needed; the beach fringe serves as the connector; and the connection does not have to be the shortest distance between reserves." Some medium and large reserves on Kupreanof Island meet the minimum criteria for connectivity, but the old-growth strategy is not fully functional due to past harvest activities, private lands, or other factors within areas expected to function as connectivity corridors.

We worked with other agency biologists to evaluate the beach fringe on Kupreanof Island and concluded that the beach fringe along the south end of the island connecting the Rocky Pass and Castle River reserves does not provide an old-growth corridor because of past clearcutting. Similarly, a beach fringe connection along the north end of Kupreanof Island that would link the Bohemia and Rocky Pass reserves is disrupted by private lands and logging. However, overland connections were identified that would join each pair of reserves and offset the lack of old-growth beach-fringe connections.

Old-growth connections between small reserves and larger reserves have biological merit, though the Forest Plan does not require them. These connections are identified between small reserves and non-development LUDs, and typically use riparian buffers to link the reserves. Further assessments of landscape connectivity will be done at the time of project implementation.

Migration Corridors

Maintaining the ability of individual animals and species to naturally disperse across Kupreanof Island and to nearby islands is an important ecosystem management concern. Key movement routes include; 1) the southern tip of the Lindenberg Peninsula across to Mitkof Island, 2) Rocky Pass to Kuiu Island, 3) east and west between Duncan Salt Chuck and Portage Bay, and 4) east and west between Duncan Canal and Rocky Pass. The first two areas are being maintained in natural settings in non-development land use designations. About half of the isthmus between Portage Bay and Duncan Salt Chuck is within a wilderness area, also a non-development LUD. Protected beach-fringe and riparian forest strips are used for other natural migration and dispersal routes. As discussed in the previous section, two forest corridors have been recommended to maintain animal movement across Kupreanof Island.

Current Projects

- Working with Alaska Department of Fish and Game to determine long-term deer population trends with deer pellet counts.
- Monitoring known goshawk, osprey, and great blue heron nests to determine reuse of nesting sites.
- Wolf and marten telemetry studies to validate habitat use and interagency model predictions.

Possible Projects on National Forest Lands

- Precommercially thin about 200 to 300 acres of second growth in beach-fringe clearcuts in the next five years. Make modifications to this habitat by thinning, pruning, topping, girdling etc. to increase structural diversity and accelerate growth of individual trees to improve habitat values.
- Precommercially thin all clearcut harvest units when they reach about 25 to 30 years of age. Thin to improve timber production and promote understory forage production for wildlife in non-development LUDs.
- Maintain management of harvested stands within non-development LUDs to improve wildlife habitat.
- Determine areas where bear and other wildlife viewing opportunities exist or can be improved for visitor access.
- Inventory bear concentration areas.
- Inventory migratory bird use of Kupreanof Island.

Chapter 4

Projects and Design Objectives

Chapter 4 - Projects and Design Objectives

Chapter 3 describes existing conditions on Kupreanof Island and lists current and possible projects by resource. This chapter lists the same projects by each area on Kupreanof Island and shows on a map how various projects within the area relate to each other on the ground. Design objectives that may be desired in the area are also listed. All maps are in a separate map packet.

Some of the current and possible projects are found throughout Kupreanof Island or could be planned to take place anywhere on the Island. These projects are listed in the first section of this chapter under "All of Kupreanof Island" and are not given any design objectives, nor are they shown on the area maps. For other projects discussed in this chapter, we have divided up Kupreanof Island into three areas: North Kupreanof, Southwest Kupreanof, and Duncan Canal (see Maps 7, 8, and 9). These areas were selected as a way to assist readers in locating projects. On the three area maps, roads are shown with desired future Road Management Objectives (how we propose to manage them). Existing Road Management Objectives, as shown on Map 5, are how roads are maintained currently.

All of Kupreanof Island

Current Projects

- The Forest Service is working with the Alaska Department of Fish and Game to determine long-term deer population trends with pellet counts.
- Known goshawk, osprey, and great blue heron nests are being monitored to determine reuse of nesting sites.
- Wolf and marten telemetry studies are being done to validate habitat use and interagency model predictions.
- Road condition surveys are being updated and completed for all Kupreanof Island roads.
- Active roads are being monitored and problems corrected as funding becomes available.
- Fish passes are monitored annually for any problems with fish passage.
- A site stewardship program in collaboration with the Organized Village of Kake and the community of Kake is being developed.

Possible Projects

- Precommercially thin about 200 to 300 acres of second growth in beach-fringe clearcuts in the next five years. Make modifications to this habitat by thinning, pruning, topping, girdling etc. to increase structural diversity and accelerate growth of individual trees to improve habitat values.
- Precommercially thin all clearcut harvest units when they reach about 25 to 30 years of age. Thin to improve timber production and promote understory forage production for wildlife in non-development LUDs.
- Conduct a landslide inventory for the entire Island.
- Identify landslides and slumps and revegetate them, if necessary.

- Identify areas where woody debris was cleaned out of streams. Evaluate these areas and streams to determine if large wood should be placed back into the channels to improve fish habitat.
- Identify roads to be taken off the maintained road system. Recondition them for storage by removing culverts and bridges, adding water bars, and revegetating.
- Determine areas where bear and other wildlife viewing opportunities exist or can be improved for visitor access.
- Design and publish a map of Kupreanof Island showing the whole island.
- Design and publish a brochure for rock hounds including a map of the varied geology of Kupreanof Island.
- Assess scenic quality and viewsheds at recreation sites, roads, and trails.
- Produce a brochure pertaining to ancient fish traps.
- Offer a Passport In Time volunteer project focusing on inventory, monitoring, research, or investigations.
- Inventory visual quality objectives and mitigate visual impacts where possible.
- Rehabilitate scenic views with vegetation management where appropriate.
- Continue to work with communities and Tribal Governments to identify and manage areas important for subsistence use.
- Monitor subsistence use throughout Kupreanof Island.
- Look for opportunities to improve access to subsistence resources.
- Timber salvage will be considered if areas of blowdown or mortality occur.
- Inventory bear concentration areas.
- Inventory migratory bird use of Kupreanof Island.

The following sections display the current and possible projects by area. The first area is North Kupreanof. The projects included in this section are from the Kake and Portage Bay areas.

North Kupreanof Area (Map 7)

Current Projects

- The Bohemia Mountain Timber Sale is scheduled to harvest about 35 MMBF. This sale sold in 1996 and ends in 2003. All units are being clearcut by cable-yarding, shovel, or helicopter logging.
- The Alternatives-to-Clearcutting Research Study, located in Missionary Valley, is scheduled to harvest about 8.5 MMBF. This sale sold in 1998. Silvicultural prescriptions call for clearcutting, group selection and individual tree selection. All units will be helicopter logged. Harvest began in June 1999 and will be completed within one year.
- Bo Timber Sale is scheduled to harvest about 2230 ccf. This sale sold in 1998 and has been completed. All units were clearcut with reserve trees by shovel logging.
- An annual kid's fishing derby is held in Kake for National Fishing Week.
- Most years, the Forest Service organizes an archaeology fair in Kake that includes a heritage children's fair at the elementary school, a round table discussion at the Senior Center, archaeology slide shows for schools and community. This year (year 2000) we showed school children how to make stone tools, throw an atlatl, and design an ancient fish trap.
- Resource specialists from the Forest Service participate in the annual Kake Culture Camp.
- Todahl Backline Timber Sale is scheduled to harvest about 7.0 MMBF. The silvicultural prescription is for group selection. Units will be helicopter logged. This sale sold in 1999.
- The Scattered Timber Sale is scheduled to harvest about 5 MMBF.
- We hold informal and formal heritage discussions with the Organized Village of Kake.
- We organized and held a Passports In Time volunteer project that focused on testing and analyzing a prehistoric Native village at Portage Bay.
- Reconstruct Cathedral Falls Trail.
- Complete work on Seal Point boat ramp.
- Goose Timber Sale consists on one unit that is a clearcut with reserves.

Possible Projects

- Several areas on the Kake road system are being considered for harvest of less than one million board feet in small sales.
- Inventory slides on the Hamilton River for possible rehabilitation work.
- Monitor Road 45601 for possible water quality problems.
- Several large debris torrents have entered Todahl Creek over the past several years. Inventory work is needed to determine if there are restoration needs within this watershed.
- Gunnuk Creek is largely on Kake Tribal Corporation and Sealaska Corporation lands. Restoration in this watershed would be high priority since it is a municipal water supply and the location of a fish hatchery. The Forest Service will offer technical assistance and grant opportunities to the City of Kake and landowners.

- The Big Creek area is used during fair weather for fishing, camping, and whale watching. The addition of a tent platform or shelter would supplement the recreation experience here.
- Develop adequate upland storage for the Little Hamilton LTF to improve operation feasibility and water quality protection.
- Monitor Little Hamilton LTF for effects to water quality and ocean organisms.
- Reconstruct trail at Goose Lake.
- Build trail to Jamaica Lake and consider shelter or other recreation development.
- Improve marking on the Colp Lake trail and replace bridges.
- Place a moorage or possible skiff haulout at the trailhead of Colp Lake trail.
- The Portage Bay cabin is near the Portage Loop Trail but is less used than the newer West Point Cabin in Portage Bay. One person requested that the cabin be maintained for hikers. Could keep cabin in this location if use increases when the trail is better marked.
- Construct access to Scott Peak alpine lakes from the road system.
- Mark trail to Kane Peak Lake to access grayling fishing and possibly construct a shelter.
- Construct new trailheads off the Bohemia Road for the Portage Mountain Loop Trail.
- Develop a management plan for the North Hamilton River Redcedar Special Interest Area.
- Road 6041 (1.2 miles) accesses the North Hamilton River Redcedar Special Interest Area. The first 0.5 miles bisects the Special Interest Area, and has become overgrown with alder. The remainder of the road runs through a clearcut. *Recommendation:* Upgrade the maintenance level through the Special Interest Area from 1 to 2. Remove drainage structures and install waterbars beyond this area.
- Road 45006 (0.3 miles) is located on the north shore of Hamilton Bay, extending from the Little Hamilton Log Transfer Facility to a viewpoint overlooking the Bay. Kake residents use it as a recreation area. *Recommendation:* Change maintenance level from 1 to 2, keep brush from encroaching into the roadway, and maintain drainage control.
- Road 6309 (0.99 miles) is located on the east side of Portage Creek. *Recommendation:* Place entire road into Maintenance Level 1 category in order to reduce maintenance costs in the future. Remove all drainage structures to restore natural drainage patterns.
- Build trail to Bohemia Lake and consider shelter or other recreation development.
- Establish bear viewing sites at Kah Sheets falls and other areas of bear concentration.
- Improve trail and build shelters along Portage Mountain Loop Trail.
- North shore of Kupreanof from Kake to Five mile Creek, except in Old-growth or Semi-Remote LUD. Timber harvest on a 200-year rotation except in Old-growth or Semi-Remote LUDs
- North central Kupreanof island, except in Old-growth or Semi-Remote LUDs. Timber harvest on a 100-year rotation.
- Scott Peak Project located on the northeast portion of Lindenberg peninsula.
- North Kupreanof Project located to the west of Portage Bay.
- Portage Bay Project located on the east side of Portage Bay.
- Todahl Cable Project located along the road system on north Lindenberg peninsula.
- Kake Second-Growth Project near Kake.

Design Objectives

- Monitor resource impacts to Bohemia Lakes.
- If the power line intertie is proposed, consider economics, ease of maintenance, access, and visual impacts.
- Look for opportunities for selective timber harvest.
- Continue monitoring roads to maintain healthy water bodies.
- Monitor old-growth carrying capacity thresholds.
- Monitor Wildlife Analysis Area (WAA) thresholds to determine if there is a need for 810 Hearings.
- Consider forest health issues in all planning.

The second area is Southwest Kupreanof. The projects included in this section are from the southern end of the Kake road system to the southern end of the Kupreanof.

Southwest Kupreanof Area (Map 8)

Current Projects

- The Shamrock Timber Sale is scheduled to harvest about 24 MMBF. This sale was sold in 1997 and is scheduled to end in 2003.
- The Four Leaf Timber Sale was sold in 1999. The silvicultural prescriptions call for group selection and clearcutting-with-reserves. Units will be cable, shovel, and helicopter logged.
- Analysis is ongoing for the Douglas Timber Harvest on the south end of Kupreanof.
- Several areas on the Kake road system are being considered for harvest of less than one million board feet in small sales.

Possible Projects

- Fertilize Kushneahin Lake to enhance sockeye salmon production.
- Inventory areas of volcaniclastic rock on the southwestern portion of the island and monitor them for water quality impacts.
- Plan a kayak and canoe trail through Rocky Pass and Keku Strait including shelter or tent platform locations. Include a map of the trail that shows camp locations where there is easy beach access.
- Build a trail to Kluane Lake and consider other recreation development.
- Reconstruct the trail between Big John Bay Cabin and the Kake road system.
- Brush and mark a trail from the recently built Shamrock road system to Irish Lakes. Trail hardening will be planned if there is high use of the trail or resource impacts.
- Road 45806 (1.55 miles) was constructed in 1998, but planned for closure once the Shamrock Timber Sale was complete. *Recommendation:* Leave the road open in Maintenance Level 2 category until a final trailhead location is established for the potential trail to Irish Lakes. Once the trailhead is finalized, close the remainder of the road and remove all affected drainage structures.
- Road 6332 (0.8 miles) was constructed in the early 1980's and has become overgrown with alder. *Recommendation:* Change Maintenance Level from 2 to 1, remove drainage structures and restore natural drainage patterns. This will reduce erosion potential and future maintenance costs.
- Storm-proof Road 6334 by installing driveable waterbars and rolling dips to prevent road surface erosion.
- Road 45808 (3.8 miles) was constructed in 1997 and closed the following year after timber harvest from milepost 2.8 to 3.8. The Shamrock Timber Sale Environmental Impact Statement recommended that the road in its entirety be closed after timber harvest. However, the road has received continuous local use for hunting and sightseeing. *Recommendation:* Leave the first 2.8 miles open for high-clearance vehicles.
- Road 6366 (1.38 miles) begins near milepost 4 on the White Rock Road. *Recommendation:* Change the Maintenance Level from 2 to 1, remove drainage structures and restore natural drainage patterns. This will reduce erosion potential and future maintenance costs.

- Central Kupreanof, except in Old-growth LUD. Timber harvest on a 100-year rotation.
- Totem Creek drainage and north of Douglas Bay, except in Old-growth LUD. Timber harvest on a 100-year rotation.
- Central Kupreanof Project located in the middle of the island adjacent to the road system.
- Establish bear-viewing sites on Lovelace Creek.
- .Establish bear viewing sites and a trail along Kushneahin Creek.

Design Objectives

- Develop a Wild and Scenic River monitoring plan.
- Monitor for mountain lion and elk, two wildlife species possibly moving on to Kupreanof.
- Consider forest health issues in all planning.
- Look for opportunities for selective timber harvest.
- Continue monitoring roads to maintain healthy waterbodies.
- Monitor old-growth carrying capacity thresholds.
- Monitor Wildlife Analysis Area (WAA) thresholds to determine if there is a need for 810 Hearings.

The final area is Duncan Canal. The projects included in this section are from Duncan Canal and the Tonka road system.

Duncan Canal Area (Map 9)

Current Projects

- South Lindy One Timber Sale is scheduled to harvest about 3300 ccf. This sale sold in 1998 and ends in 2001.
- Dakota Timber Sale is scheduled to harvest about 616 ccf and was sold in 1998 with a planned end in 2000.
- South Lindenberg Timber Sale is scheduled to harvest 11 MMBF. It was sold in 1997 and ends in 2001.
- Complete modifications on three Duncan Creek barriers.
- Duncan Creek is being stocked with coho salmon so they implant on the Creek. These salmon will return when the barrier modifications are completed.
- The Petersburg Lake Cabin is being studied for modification or relocation to prevent flood damage.
- South Lindy Southeast Timber Sale is expected to be offered for bid in 2000. The silvicultural prescriptions call for group selection and clearcutting-with-reserves. Units will be cable, shovel, and helicopter logged.
- Small sales on the Lindenberg Peninsula, up to 2 MMBF per sale, will be offered each year through 2004. Units will be cable and shovel logged.
- We have worked on documenting the Kupreanof Cemetery northeast of the City of Kupreanof.
- South Lindenburg Mountain Timber Sale.

Possible Projects

- Continued work on the Kupreanof Cemetery.
- Improve trail and build shelters along Portage Mountain Loop Trail.
- Improve old Duncan Creek Trail route and look at opportunities to connect it to the Portage Mountain Loop Trail to make an extensive loop trail.
- Maintain motorized access to Duncan Canal and develop dispersed picnic/ camping sites.
- Sites for possible construction of a recreation cabin in Duncan Canal are being analyzed.
- Construct a fishpass at Towers Creek.
- Fertilize Kah Sheets Lake for sockeye enhancement.
- A stream within a clearcut harvest in the 1980's located northeast of Mitchell Slough is devoid of large woody debris. Placing wood in this channel would create fish habitat where none presently exists.
- Monitor the Kah Sheets Lake landslides for possible water quality problems.
- Monitor the Castle River Trail for water quality.
- Monitor the Petersburg Creek landslides.
- Improve the dock at the Tonka LTF for pleasure craft. Improve parking and vehicle access with the idea of putting parking out of view of Wrangell Narrows.
- Revamp the CCC shelter at Warm Fish Lake and possibly improve the trail to the Duncan Pass road and to the Tonka Road for destination trips.

- Rehabilitate the trail to Green Rocks Lake.
- Establish a trailhead from a good anchorage in Kah Sheets Bay to make boat access to the trail. Convert the old logging road near Kah Sheets Bay for trail use and build a plank spur trail to the Cove to reach a better floatplane landing area.
- Locate, design, and construct the remainder of the Portage Mountain Loop Trail.
- Construct a recreation site at Indian Point including a cabin.
- Reconstruct the Petersburg Mountain Trail.
- Convert the old logging road to a trail from Duncan Canal south of Ohmer Slough up to Road 6350 for biking and possibly off-road vehicle use if it meets road objectives for the area.
- Road 6325, the White Alice Road, (5.5 miles) begins at the beach on Duncan Canal and climbs to an elevation of 2,100 feet to a decommissioned military site. The first 0.2 miles from the beach to the junction of Road 6350 is overgrown with alders and impassable to motor vehicles. The last 1.8 miles has had all drainage structures removed and is in storage. *Recommendation:* Brush the alders to provide access to the beach. Reopen the closed section of the road to provide recreation access to spectacular views and to the mountain top alpine area.
- Road 6352 (11.44 miles) accesses the south side of the Mitchell Creek drainage and enters and old-growth area above Duncan Canal. Vehicle traffic has increased in recent years during deer and moose hunting seasons. *Recommendation:* Change the Maintenance Level from 3 to 2. Storm-proof the road with installation of driveable waterbars and rolling dips to prevent road surface erosion. Replace the two aging log bridges to provide safe passage.
- Road 6355 (1.94 miles) parallels Wrangell Narrows south of the Tonka LTF. *Recommendation:* Change the Maintenance Level from 3 to 2. Storm-proof the road with installation of driveable waterbars and rolling dips to prevent road surface erosion.
- The second half of Road 6353 (0.9 miles) is currently Maintenance Level 1, however drainage structures have not been removed. *Recommendation:* Place the entire road into Maintenance Level 1 category in order to reduce maintenance costs in the future. Remove drainage structures and restore natural drainage patterns.
- Timber harvest on South Lindenberg Peninsula, except in the Old-growth LUD, based on a 200-year rotation.
- Timber harvest northwest of Duncan Canal, except in the Old-growth or Semi-Remote LUDs, based on a 100-year rotation.
- Timber harvest in Kah Sheets Creek drainage, except in the Old-growth, Semi-Remote, or Wild River LUDs, based on a 100-year rotation.
- West Mitchell Timber Harvest Project located on South Lindenberg peninsula.
- SE Kupreanof Helicopter Timber Harvest Project on the southeastern end of the island.
- Duncan Valley Timber Harvest Project to the west to Duncan Canal on South Lindenberg peninsula.

Design Objectives

- Monitor hazardous waste cleanup at Indian Point by the FAA.
- Consider forest health issues in all planning.
- Look for opportunities for selective timber harvest.
- Continue monitoring roads to maintain healthy waterbodies.
- Monitor old-growth carrying capacity thresholds.
- Monitor Wildlife Analysis Area (WAA) thresholds to determine if there is a need for 810 Hearings.

Bibliography

The following is a list of books, maps, papers, and articles that provide more information on Kupreanof Island. Some of the sources were used as reference material for developing the Kupreanof Island Analysis. Some of the listings are environmental analysis documents done for past projects on Kupreanof Island. Other listings, such as *Hiking Trails, Petersburg Ranger District*, are useful to people visiting Kupreanof Island. The Petersburg Ranger District, located in the Forest Service Office on Twelfth Street in Petersburg, has copies of the technical and environmental documents. Forest Service publications for visitors can be picked up (there is a fee for some) at the Petersburg Ranger District located above the Post Office in downtown Petersburg.

Visitor Publications

Connor, C. and D. O'Haire. 1988. Roadside Geology of Alaska. Mountain Press Publishing Co., p. 43 and 47.

DeArmond, R.N. 1989. Southeast Alaska Names on the Chart. Commercial Art, Inc. Box 21708, Juneau, Alaska.

USDA Forest Service. 1994. Hiking Trails, Petersburg Ranger District. Tongass National Forest. G.P.O. 1994 794-206.

USDA Forest Service. 1995. A Guide to Northwest Kupreanof Island. Tongass National Forest. R10-RG-89.

USDA Forest Service. 1997. Public Recreation Cabins, Stikine Area. Tongass National Forest. R10-RG-113.

Environmental Analysis Documents

USDA Forest Service. 1976. South Lindenberg Peninsula Unit Management Plan and Final Environmental Statement. Tongass National Forest. USDA-FS-R10-FES(Adm)76-02.

USDA Forest Service. 1991. Environmental Assessment, Mitkof-Kupreanof Small Timber Sale Analysis. Petersburg Ranger District.

USDA Forest Service. 1993. Bohemia Mountain Timber Sale Final Supplemental Environmental Impact Statement. Tongass National Forest. R10-MB-236.

USDA Forest Service. 1993. Environmental Assessment, Decision Notice and Finding of No Significant Impact for the Portage Creek Dual Fishway Proposal. Petersburg Ranger District.

USDA Forest Service. 1994. Decision Notice and Finding of No Significant Impact for Imprinting Coho With Morpholine, an Artificial Scent. Petersburg Ranger District.

USDA Forest Service. 1995. Shamrock Timber Sale(s) Final Environmental Impact Statement and Record of Decision. Tongass National Forest. R10-MB-293A through C.

USDA Forest Service. 1996. Alternatives-to-Clearcutting Research Study Decision Notice/FONSI. Tongass National Forest.

USDA Forest Service. 1996. South Lindenberg Timber Sales Final Environmental Impact Statement. Tongass National Forest. R10-MB-337.

USDA Forest Service. 1997. Decision Notice and Finding of No Significant Impact for the Seal Point Recreation Area. Petersburg Ranger District.

USDA Forest Service. 1997. Decision Notice and Finding of No Significant Impact for the Duncan Creek Barrier Modification Enhancement Project. Petersburg Ranger District.

USDA Forest Service. 1997. Stikine Area Outfitter and Guide Environmental Assessment. Tongass National Forest. R10-MB-346,

USDA Forest Service. 1998. Todahl Backline Environmental Assessment, Decision Notice, and Finding of No Significant Impact. Tongass National Forest. R10-MB-361.

USDA Forest Service. 1999. Tongass Land and Resource Management Plan, 1999, Alaska Region.

Technical Articles and Papers

Alaska Department of Community and Regional Affairs. 1999. Community Information Summaries. www.comregaf.state.ak.us/CF_CIS.cfm.

Athman, Constance M. and Bruce P. McCammon. 1989. Baseline Risk Assessment: A Convincing Cumulative Effects Analysis in the Bull Run Watershed. Proceedings of the Symposium on Headwaters Hydrology, American Water Resources Association.

Bosch, J.M. and J.D. Hewlett. 1981. A Review of Catchment Experiments to Determine the Effects of Vegetation Changes on Water Yield and Evaporation. Journal of Hydrology, 55(1982) 3-23.

Everest, et.al. 1995. Report to Congress Anadromous Fish Habitat Assessment. USDA Forest Service. R10-MB-279.

Farr, Wilbur A. and John S. Hard. 1987. Multivariate Analysis of Climate Along the Southern Coast of Alaska - Some Forestry Implications. USDA Forest Service Research Paper PNW-RP-372.

Firman, Anne S. and Robert G. Bosworth. 1990. Harvest and Use of Fish and Wildlife Resources by Residents of Kake, Alaska. Technical Paper No. 145. Alaska Department of Fish & Game, Division of Subsistence.

Gehrels, G.E. and H.C. Berg. 1992. Geologic Map of Southeastern Alaska. USGS Map I-1867.

Goldschmidt, W. and T. Haas. 1946. Possessory Rights of the Natives of Southeastern Alaska. Submitted to the Commissioner of Indian Affairs, U.S. Department of Interior, Washington, D. C.

National Historic Preservation Act of 1966, as amended.

Schnackenberg, Elizabeth S. and Lee H. MacDonald. 1998. Detecting Cumulative Effects on Headwater Streams in the Routt National Forest, Colorado. Journal of the American Water Re

Smythe, Charles W. 1988. Harvest and Use of Fish and Wildlife Resources by Residents of Petersburg, Alaska. Technical Paper No. 164. Alaska Department of Fish & Game, Division of Subsistence.

Swanston, Douglas N. and Daniel A. Marion. 1991. Landslide Response to Timber Harvest in Southeast Alaska. Proceedings of the Fifth Federal Interagency Sedimentation Conference.

United States Department of Interior and National Park Service. 1992. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin No. 38.

☆ U.S. GOVERNMENT PRINTING OFFICE: 2000 — 589-113 / 10028 Region No. 10

Federal Recycling Program
Printed on Recycled Paper