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Department of
Agriculture

Forest Service

Tongass
National Forest
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November 2012



Dargon Point Commercial Thinning Environmental Assessment

Thorne Bay Ranger District
Thorne Bay, Alaska



Dargon Point EA Acronyms

ANHP – Alaska Natural Heritage Program	OHV – Off Highway Vehicle
ANILCA – Alaska National Interest Lands Conservation Act	POG – Productive old-growth
ATM – Access and Travel Management	POW – Prince of Wales Island
BA – Biological assessment	RAW – Reasonable assurance of windfirmness
BE – Biological evaluation	RMA – Riparian Management Area
BMPs – Best Management Practices	S&G – Standards and Guidelines
CFR – Code of Federal Regulations	SOPA - Schedule of Proposed Actions
CMAI - Culmination of mean annual increment	TES – Threatened, endangered and sensitive species
EA – Environmental Assessment	TM – Timber production
EFH – Essential Fish Habitat	TTRA – Tongass Timber Reform Act
EIS – Environmental Impact Statement	VDT – Variable density thinning
FASTR – Financial Analysis Spreadsheet Tool-Residual	WAA – Wildlife analysis area
FSH – Forest Service Handbook	YG – Young-growth
FSM – Forest Service Manual	
FONSI – Finding of No Significant Impact	
HUC – Hydrologic unit code	
IDT – Interdisciplinary team	
ITS - Individual-tree selection	
LUD – Land Use Designation	
MAF – Marine Access Facility	
MBF – Thousand Board Feet	
MMBF – Million Board Feet	
NEPA – National Environmental Policy Act	
NFMA – National Forest Management Act	
NFS – National Forest Service	
NHPA – National Historic Preservation Act	
NRIS – Natural Resource Information System	

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Date: November 5, 2012

Dear Planning Participant:

I am pleased to announce that the Dargon Point Commercial Thinning Environmental Assessment (EA) is available for your review and comment. It has been posted on the internet at: <http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=38409>. Copies of the EA are also available upon request on CD or hardcopy from the Thorne Bay Ranger District.

The EA was developed based on public comments received during the scoping period.

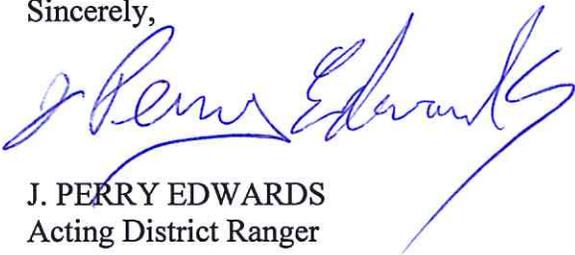
This project proposes commercial thinning and harvest of around 1.4 million board feet (MMBF) of mature (60-70 years old) young-growth spruce and hemlock from around 70 acres harvested in the 1940s. About 1 mile of new road would be constructed in this project. In response to comments received during the scoping period, an alternative to the proposed action was developed that includes rotational harvest (clearcutting) in the portion of the stand outside the 1,000 beach buffer.

I am now asking for your comments, which will be considered in making my decision on this project.

Comments should be submitted in writing to the Thorne Bay Ranger District at the above address or electronically to comments-alaska-tongass-thorne-bay@fs.fed.us (subject line "Dargon Point EA"). Comments will be accepted for 30 calendar days following the publication of the legal notice in the *Ketchikan Daily News*. Those who provide comments during this 30-day period are eligible to appeal the decision pursuant to 36 CFR part 215 regulations. Your comments will become part of the public record.

For more information, please call Ben Case at 907-772-5883.

Sincerely,



J. PERRY EDWARDS
Acting District Ranger



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Dargon Point Commercial Thinning

Environmental Assessment

Lead Agency

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Thorne Bay Ranger District**

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Table of Contents

Introduction	1
What Is Being Proposed With This Project?.....	1
Why Is This Project Being Proposed?.....	2
What Factors Will Be Used To Make A Decision On This Project?.....	3
Who Was Consulted For This Project?	3
Issues	4
Alternatives	4
What Would it Mean to Not Meet The Need?	4
Comparison of Alternatives.....	5
What Other Actions Could Meet The Same Need?	7
Mitigation	7
Monitoring.....	8
Environmental Effects of the Alternatives	8
Resources Not Likely to be Affected by Any of the Alternatives.....	11
Heritage	11
Karst/Caves	11
Old-growth Forest	11
Recreation.....	12
Scenery	12
Soils/Wetlands.....	12
Resources Which Could be Affected by the Alternatives.....	12
Fisheries Resources	12
Affected Environment	12
Environmental Consequences	13
Mitigation Measures.....	14
Watershed.....	15
Affected Environment	15
Environmental Consequences	15
Mitigation	16
Botany	17
Affected Environment	17
Environmental Consequences	19
Invasive Plant Species	21
Affected Environment	21
Environmental Consequences	21
Silviculture	22
Affected Environment	22
Environmental Consequences	23
Transportation	27
Affected Environment	27
Environmental Consequences	28
Wildlife Resources	28
Introduction	28

Affected Environment.....	29
Environmental Consequences.....	32
Summary.....	37
Subsistence.....	39
Affected Environment.....	39
Environmental Consequences.....	40
Conclusion and Finding.....	41
Timber Economics.....	42
Affected Environment.....	42
Environmental Consequences.....	42
Findings Required by Other Laws and Regulations.....	44
Required Permits.....	48
List of Preparers.....	48
Literature Cited:.....	49
Appendix A – Maps.....	51
Appendix B – Unit and Road Cards.....	55

Introduction

The Thorne Bay Ranger District has prepared this environmental assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and its implementing regulations at 40 CFR 1500-1508. This EA analyzes and discloses the environmental consequences of the Proposed Action, an action alternative, and a No-action Alternative for the Dargon Point Commercial Thinning project. An EA provides the means to determine whether an environmental impact statement (EIS) will be prepared or whether a finding of no significant impact (FONSI) is appropriate. This EA incorporates direction established by the 2008 Final Environmental Impact Statement Plan Amendment (Forest Plan FEIS) for the Tongass Land and Resource Management Plan 2008 (Forest Plan).

Additional documentation, including detailed analyses of project area resources, is located in the project record located at the Thorne Bay Ranger District Office in Thorne Bay, Alaska.

What Is Being Proposed With This Project?

The proposed action for this project is to commercial thin and harvest around 1.4 million board feet (MMBF) of mature (60-70 years old) young-growth spruce and hemlock from a stand, approximately 70 acres in size, that was originally harvested in the 1940s.

Approximately 1 mile of road would be constructed to allow for ground-based logging systems. No road would be constructed within the 1,000-foot beach fringe.

The proposed silvicultural treatment includes a single entry comprised of two types of thinning; 1) a variable density thinning (VDT), with skips and gaps, for approximately 16 acres that fall in the 1,000-foot beach and estuary fringe (beach fringe), and 2) a crown thinning for the remaining portion of the stand within the Timber Production (TM) land use designation (LUD). Both proposed treatments are designed to interrupt existing stem exclusion conditions and result in healthy, windfirm stands with enhanced understories; however, the VDT within the beach fringe will have greater emphasis on a windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure (USDA FS 2008a, p. 4-5; Beach and Estuary Fringe Standards and Guidelines, Beach2, II A.10), whereas treatments for the remaining portion of the stand will emphasize long-term timber yield.

Harvest activities are proposed to begin in 2013.

Project Area Location

The 2,276-acre Dargon Point project area is located along the western shore of Prince of Wales Island, approximately 3 miles north of the community of Naukati, within the Thorne Bay Ranger District, Tongass National Forest (see Vicinity Map, Figure 1, Appendix A). The project area includes a portion of wildlife analysis area (WAA) 1422 and a portion of the Sarkar Creek and Jinhi Bay-Frontal El Capitan Passage (6th level HUC) watersheds. This project occurs outside of an inventoried roadless area, and entirely within the TM LUD. Overall, the terrain is relatively gentle, comprised of glacial till over limestone bedrock. This area has one of the higher concentrations of young-growth (YG)

on the Tongass, with a small portion of these YG stands dating back to the early 1900s. The area also has a significant amount of YG from more recent harvest that occurred from the 1960s through the 1990s. Older harvest in the area originally accessed stands of timber from the beach; however, harvest since 1960 has developed a network of roads throughout most of the project area.

Why Is This Project Being Proposed?

This section outlines three reasons the project is proposed (i.e., the purpose) with discussions on the underlying need for each of the actions.

- Improve forest vegetation conditions for timber production and wildlife habitat.

A majority of the young-growth stands in the project area have undergone intermediate treatment (thinning) for improving future timber production and wildlife habitat; however, most of the oldest young-growth stands have not received intermediate treatments. These older untreated stands are heavily-stocked, productive young-growth stands, with commercial size material and are near, or have reached, culmination of mean annual increment (CMAI). Out competed trees are dying or have died, and growth of understory vegetation important for wildlife habitat is restricted.

- Promote forest health.

The proposed thinning unit is a heavily stocked, productive young-growth stand resulting from a 1940s A-frame clearcut. The stand was originally accessed from the beach. Currently, a majority of the stand is in the stem exclusion stage. Trees are competing for light and few, if any, new trees are being added. Tree canopy closure is high and predominantly composed of a single layer of dominant, co-dominant and intermediate spruce and hemlock. Average stem height-to-diameter ratios over most of the stand are within the range suitable for intermediate treatment; however, portions of the stand consist of taller, more spindly trees making these areas unstable if predisposed through thinning to wind, snow and ice damage. Pockets of windthrow are present in the southern portion of the stand. Minor tree species, if present, consist of western redcedar. Snags and downed trees are comprised of mostly intermediate and smaller-sized material from trees that have succumbed to suppression mortality.

Without treatment it is expected that tree growth, and subsequent growth of stand volume, will continue to slow. Also, tree height-to-diameter ratios will increase, limiting future management options due to the susceptibility of windthrow.

- Respond to the goals and objectives in the Forest Plan for the management of young-growth stands.

In an effort to implement Forest Plan Goals and Objectives, and due to an increasing interest in producing commercial wood products through management of young-growth on the Tongass National Forest (Alexander et al. 2010), the IDT has found a need in the Dargon Point project area for vegetation treatments on about 70 acres of young-growth. This project is designed to maintain or increase the potential to produce sawtimber and other forest products, while enhancing wildlife habitat. Forest Plan goals and objectives for young-growth management include:

- Manage the timber resource for production of sawtimber and other wood products from suitable lands made available for timber harvest on an even-flow, long-term sustained yield basis, and in an economically efficient manner (USDA FS 2008a, p. 2-7).
- Maintain, prolong, and/or improve understory forage production, and to improve habitat distribution, including future old-growth characteristics in young-growth timber stands on both suitable and unsuitable lands (USDA FS 2008a, p. 2-9).

What Factors Will Be Used To Make A Decision On This Project?

Based on the environmental analysis in this EA, and following the goals, objectives and desired conditions outlined in the Forest Plan, the Responsible Official will decide whether and, if so, how to make timber available from the Dargon Point project area.

This decision will include:

- Whether to authorize the commercial thinning of trees in the Dargon Point young-growth stand;
- Whether to authorize the even-aged harvest of trees in the Dargon Point young-growth stand;
- Whether to authorize road building and associated activities in support of timber harvest;
- What, if any, specific mitigation measures are required for the project;
- What, if any, specific monitoring requirements are needed beyond Forest Plan monitoring to ensure that established design criteria are implemented;
- Whether the action results in any significant effects; and
- Whether or not the action might significantly restrict subsistence uses.

Who Was Consulted For This Project?

Public and Agency Involvement

The project was introduced to the collaborative Staney Community Forest Working Group in a June 15, 2011 progress report and reported on again September 23, 2011 by the Thorne Bay District Ranger.

The project has been listed on the Thorne Bay Ranger District Schedule of Proposed Actions (SOPA) since April 1, 2012. A scoping letter was sent on April 23, 2012 to approximately 140 individuals, organizations, and federal and state agencies that had previously shown interest in USDA Forest Service projects within the vicinity of Prince of Wales Island, Alaska (<http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=38409>). The scoping letter solicited comments, and summarized the purpose and need and actions proposed. One response to scoping was received. To address the comments, the IDT developed an alternative to the proposed action.

Tribal Consultation

As part of ongoing government-to-government tribal relations and collaborative management of resources on Prince of Wales Island, the Craig Community Association (CCA), Klawock Cooperative Association (KCA), Hydaburg Cooperative Association (HCA), and the Organized Village of Kasaan (OVK) were provided a written overview of Thorne Bay Ranger District projects, including this one, on April 26, 2012.

Issues

The following issue was identified through external and internal scoping: 1) Thinning a stand of this age and size will be uneconomical and will not have a positive impact on timber production for the stand. An even-aged harvest will better meet the project objectives and will have better financial results.

The following section, Alternatives, describes the alternative developed to address this issue.

Alternatives

What Would it Mean to Not Meet The Need?

Alternative 1 – No Action

Not meeting the need is defined by the No-action Alternative. Under the No-action Alternative, current management plans would continue to guide management of the project area. Future management activities conducted as part of new environmental document decisions would occur (i.e., precommercial thinning, road maintenance and timber harvest). In addition:

- It is expected that tree growth, and subsequent growth of stand volume, will continue to slow and be lost if treatment is delayed.
- Prolonging the rotation period for this stand would delay the transition to young-growth harvest emphasized in the Transition Framework.
- Tree height-to-diameter ratios will continue to increase in the stand, limiting future management options due to susceptibility to windthrow concerns.
- Abundance of understory plants and structural diversity within the beach fringe that is important for wildlife habitat will take longer to improve and meet desired conditions without management that disrupts the stem exclusion phase.
- Resource managers would be limited in their ability to provide for the production of sawtimber and other wood products from suitable lands made available for timber harvest on an even-flow, long-term sustained yield basis.
- There would not be the opportunity to support the local economy.

Comparison of Alternatives

Alternative 1 (No Action) is described above. Alternatives 2 and 3, which would both meet the project's purpose and need, are summarized and compared below.

Alternative 2 - Proposed Action

Alternative 2 proposes to thin and harvest mature young-growth to improve forest vegetation conditions to meet the project's purpose and need. The following list further defines specific project components of the proposed action.

- Commercial thinning a young-growth stand, approximately 70 acres, of spruce and hemlock that was originally harvested in the 1940s.
- Construction of approximately 1 mile of road to allow for ground-based logging systems to harvest roughly 1.4 MMBF of sawlog and utility material. No road would be constructed within the 1,000-foot beach fringe.

The proposed silvicultural treatment for this alternative includes a single entry comprised of two types of thinning; 1) a variable-density thinning (VDT), with skips and gaps, for the approximate 16 acres that are within the 1,000-foot beach and estuary fringe (beach fringe), and 2) a crown thinning for the remaining portion of the stand within the TM LUD. A crown thinning removes trees from the dominant and codominant crown classes to favor the best trees of those same crown classes; whereas, the proposed variable density-thinning, with skips and gaps, will remove trees through a crown thinning, the creation of small gaps, and retain areas of reserves (skips). Both proposed treatments are designed to interrupt existing stem exclusion conditions and result in healthy, windfirm stands with enhanced understories; however, the VDT within the beach fringe will have greater emphasis on healthy, windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure (USDA FS 2008a, p. 4-5), whereas treatments for the remaining portion of the stand will emphasize long-term timber yield.

Variable-density thinning: This treatment would include an approximate 4-acre skip (no harvest) corridor adjacent to the beach, along the far western portion of the stand. Outside of this no harvest area, trees would be thinned by individual-tree selection (ITS) to approximately 50 percent of the existing stand's basal area. Thinning would be lighter along the skipped corridor than within that portion of the beach fringe adjacent to where the crown thinning is proposed. Additionally, roughly 10 – 15 percent of this thinned area may be converted to small gaps, approximately 1/4 acre in size. Though thinning may increase the risk of windthrow within the stand, maintaining at least 50 percent of the current basal area, as well as leaving the western portion of the stand adjacent to the beach untreated, is intended to provide a reasonable assurance of windfirmness.

Crown thinning: Approximately 54 acres within the TM LUD will be thinned by an ITS crown thinning, retaining 50 percent of the stand's basal area. This is an intermediate treatment designed to enhance growth, quality, vigor and composition of the stand prior to a final harvest. A crown thinning removes trees from the dominant and co-dominant crown classes in order to favor the best trees of those same crown classes. The resulting stand will remain generally even-aged, tending to two-aged where residual trees exist in higher concentrations. Trees would be retained on a trees per acre basis. Approximately 70 trees per acre would be retained based on a spacing of 25 feet, but may vary up to +/- 33

percent on an individual tree basis, in order to select the most desirable leave trees. Spacing would apply only for hemlock and spruce; all other tree species would be retained.

The harvest of timber associated with all activities is expected to include cutting trees with a feller-buncher, which are then yarded with a shovel and forwarded to a haul road where they are loaded onto trucks for hauling.

Alternative 3

Alternative 3 is designed to manage the timber resource for production of sawtimber in the most economically efficient manner from suitable lands made available for timber harvest, as well as to enhance wildlife habitat within the approximate 1,000-foot-wide beach fringe. The following list further defines specific project components of Alternative 3:

- Clearcut approximately 54 acres comprised mostly of young-growth spruce and hemlock originally harvested in the 1940s.
- Commercially thin (variable-density thinning with skips and gaps) approximately 16 acres within the 1,000-foot beach fringe.
- Construct approximately 1 mile of road to allow harvest of roughly 2.5 MMBF of sawlog and utility material using a ground-based logging system. No road would be constructed within the 1,000-foot beach fringe.

Clearcutting: Under Alternative 3, clearcutting is proposed for the TM LUD portion of the stand that is outside the approximate 1,000-foot beach fringe. Clearcutting is an even-aged regeneration method. This regeneration method is appropriate here because:

- the stand has reached culmination of mean annual increment;
- of the high risk of windthrow that exists within the stand;
- clearcutting is an excellent regeneration method for the regeneration of desired species such as Sitka spruce;
- it is economically viable; and
- it is compatible with the use of standard logging systems.

Variable-density thinning: Within the approximate 16 acres that fall within the 1,000-foot beach fringe, a variable-density thinning, with skips and gaps is proposed. This treatment will remove trees through a crown thinning and through the creation of small gaps, while retaining areas untreated as reserves (skips). This would include an approximate 4-acre skip (no harvest) area, located in the far western portion of the stand adjacent to the shoreline. The treatment in the beach buffer is intended to interrupt existing stem exclusion conditions and result in a windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure.

As in Alternative 2, the harvest of timber is expected to include cutting trees with a feller-buncher, which are then yarded with a shovel and forwarded to a haul road where they are loaded onto trucks for hauling.

Table 1. Comparison of alternatives

Comparison Measure	Unit of Measure	Alt. 1	Alt. 2	Alt. 3
Variable density thinning (within beach fringe)	acres	0	16	16
Crown thinning (within TM LUD, outside beach fringe)	acres	0	54	0
Clearcut (within TM LUD, outside beach fringe)	acres	0	0	54
Timber volume ¹	MMBF	0	1.4	2.5
New road construction	miles	0	1	1
Logging/Transportation Cost/MBF	\$/MBF	\$0	\$438	\$285
Road Costs/MBF	\$/MBF	\$0	\$72.30	\$39.76
Indicated Bid Value/MBF ²	\$/MBF	\$0	(\$30.20)	\$123.27
Number of Annualized Direct Jobs ³	#	0	6-8	12-14

¹ Includes utility volume.

² () indicates negative value.

³ Range accounts for interstate shipment of 50 percent of total sawlog volume (Housley et al. 2007).

Maps showing the location of the unit and the existing and proposed road are included at the end of this EA in Appendix A.

What Other Actions Could Meet The Same Need?

To provide an alternative means to meet the need to improve forest vegetation conditions for timber production and wildlife habitat, the Forest Service would have to propose treatments for other young-growth stands in this area. Given that most young-growth stands in this area have not reached commercial size or require more road construction, the treatments would be more costly and may require funding to implement. Younger stands in the area would likely not produce sawlog material at this time. Harvest of old-growth stands in this area would be needed to meet the timber production component of the objectives. This option would require additional NEPA and could result in delays due to the time needed to complete additional environmental analyses.

Mitigation

The risk of adverse effects such as windthrow of standing timber after harvest, or increased sedimentation, are mitigated through application of BMPs and Forest Plan Standards and Guidelines. If any previously undocumented goshawk or other raptor nests are discovered at any time prior to or during the implementation of this project, the appropriate protection measures (nest buffers) would be applied. Other mitigation measures, such as equipment cleaning, could be employed to reduce the risk of introducing or spreading invasive plant species in the harvest unit or road corridor.

Other mitigation measures for individual resources are discussed in the resource sections

of Environmental Effects of the Alternatives, and listed on the unit card and road cards in Appendix B.

Monitoring

Routine implementation monitoring is part of the administration of a timber sale contract. The sale administrators and road inspectors ensure that the unit silvicultural prescriptions and the requisites on the unit and road cards are incorporated into contract documents; they then monitor performance relative to contract requirements. Resource staff specialists, such as fisheries biologists, soil scientists, hydrologists and engineers provide technical advice when questions arise during project implementation.

Tongass National Forest staff annually conducts a review of BMP implementation and effectiveness. The results of this and other monitoring are summarized in a Tongass National Forest Annual Monitoring and Evaluation Report. This report provides information about how well the management direction of the Forest is being carried out and measures the accomplishment of anticipated outputs, activities and effects.

Environmental Effects of the Alternatives

This section focuses on those resources most likely to be affected by the alternatives. Detailed analyses of the alternatives are contained in the project resource reports and are on file in the project record; they are summarized below. The Responsible Official will compare the anticipated benefits and consequences of implementing each alternative.

Unless otherwise specified, the analysis area for direct, indirect and cumulative effects for each resource is the 70-acre young-growth stand.

All activities proposed with this project comply with required Forest Plan Standards and Guidelines. Resource concerns are mitigated with the prescribed silvicultural treatments and unit design which adhere to Forest Plan Standards and Guidelines, and best management practices (BMPs). Project-level resource inventories have been conducted within the project area. Changes, such as minor boundary location adjustments, can be expected during implementation to better meet on-site resource management and protection objectives.

Below is a table summarizing the site-specific potential effects to project area resources based on project level investigations. Thorough discussions of the rationale behind the determinations found in Table 2 can be found below in this EA and in resource reports filed in the project record.

Table 2. Comparison of direct and indirect effects of the alternatives

Resource	Alternative 1 (No Action)	Alternatives 2 and 3
Recreation	No effect	No effect
Scenery	No effect	No effect
Fisheries	No effect	No significant effect: no fish streams in unit; no anticipated stream crossings and culverts required.
Watershed: streamflow or water quality effects at the 6 th level watershed scale	No effect	No significant effect. Effects would not be detected at this scale.
Watershed: peak flow increases at the small catchment scale	No effect	Moderate effect at the small catchment-scale analyzed; negligible at a 6 th level watershed scale. No significant effect due to the scale of the affected environment.
Watershed: water quality (sediment and turbidity)	No effect	No significant effect. Sediment and turbidity would be minor and localized, and would not degrade water quality.
Heritage	No effect	No effect
Karst/Caves	No effect	No significant effect. No caves were found in unit. Some ground disturbance is expected from logging activities; however, partial suspension and no harvest buffer in moderate- and high-vulnerability karst areas will protect the soils and karst.
Soils/Wetland	No effect	No significant effect. No wetlands found in unit or road line. Some soil disturbance in unit is expected from logging activities; the amount will not exceed Region 10 soil quality standards.
Botany: sensitive and rare plants	No effect	No significant effect. No sensitive or rare plants are known within the direct effects area for the proposed action. Some individuals of maidenhair spleenwort may be indirectly affected, but the project will not affect the population and its persistence in the long-term due to the small size of the single unit.
Invasive plant species	No effect. Non-project vectors (wildlife, wind, drainage flow) would continue to influence current populations.	No significant effect. Given the erosion control and revegetation measures detailed in the Unit Card, a low risk of invasive plant introduction and spread is expected.

Resource	Alternative 1 (No Action)	Alternatives 2 and 3
Silviculture	No effect. Tree growth and mortality would progress naturally; growth of stand volume would slow.	No significant effect. Alt 2: Tree growth would continue naturally, with increased structural diversity, enhanced growth, and changes in understory plants in the short term, varying according to the treatment applied. Alt 3: Clearcut portion of 54 acres would result in stand re-initiation; 16 acre thinned portion would be similar to Alt 2.
Transportation	No effect. Routine road maintenance would continue.	No significant effect. The 1 mile of new road constructed for the project would be closed following project activities and motor vehicle use eliminated (i.e., no net increase in the road system).
Wildlife: threatened or endangered species: Steller sea lion, humpback whale	No effect	No significant effect. There will be no effect to the marine environment (also see Table 5, below).
Wildlife: sensitive species: Queen Charlotte goshawk	No effect	No significant effect. There are no known nests in the area. “May impact individuals but not likely to cause a trend to federal listing or a loss of viability” (also see Table 5, below).
Wildlife: MIS and other species of concern potentially occurring in area	No effect	No significant effect. “May impact individuals but not likely to cause a trend to federal listing or a loss of viability” (also see wildlife resource report for more detail).
Subsistence	No change in abundance and distribution of, access to, and competition for resources.	No significant effect. There will be no significant change in abundance and distribution of, access to, and competition for resources.
Timber Economics	No effect. Sawtimber to meet the purpose and need would have to be harvested and thinning objectives would have to be met from other areas.	No significant effect. Up to 2.5 MMBF of timber could be supplied to meet market demand and up to 14 direct annualized jobs could be supported.

¹ Effects are more fully discussed in individual resource reports.

Reasonably Foreseeable Actions

At this time, there are no other projects ongoing or planned in the project area or vicinity. While the Naukati Timber Sale project area is planned approximately 1.6 miles from the Dargon Point project area, the Naukati Timber Sale project contributes little to nothing to cumulative effects. Direct, indirect, and cumulative effects are discussed for the alternatives in the resource sections below.

Resources Not Likely to be Affected by Any of the Alternatives

Several resources would be unaffected by implementing any of the alternatives because project activities would not overlap with known locations of previously identified sensitive resources or because sensitive resource issues/concerns were addressed during the development of the Proposed Action.

Heritage

An archaeological survey of the project area was undertaken in the summer of 2011 and 2012, adhering to the stipulations found in the Third Amended Programmatic Agreement among the USDA Forest Service, Alaska Region, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Resource Management on National Forests in Alaska. Any effects (direct or indirect) to historic properties eligible to the National Register of Historic Places have been mitigated according to the guidance in the aforementioned Programmatic Agreement in consultation with the Alaska State Historic Preservation Officer and the Advisory Council on Historic Preservation as required. All work conducted will meet all of the applicable Forest Service standards including the Forest Service Manual 2300, Chapter 2360- Heritage Program Management and the 2008 Tongass Land and Resource Management Plan, section HSS1- Heritage Resource Activities. The final determination by Forest Service Heritage Resources is that the project will have no effect on historic properties eligible to the National Register of Historic Places.

Karst/Caves

In 2011, Forest Service geologists inventoried the proposed treatment area for karst resources and conducted a karst vulnerability assessment. The treatment area is completely underlain by limestone with well-developed karst drainage. No significant caves were found within the unit. The epikarst in these units is moderate to well-developed on knobs and ridge tops with a complex mosaic of Sarkar and McGilvery soils, and several small sinks were noted. One significant resurgence feature was found along the southern portion of the unit and will be protected by a 100-foot no-harvest buffer.

Due to previous harvest and thinning, a layer of organic debris is present throughout most of the unit. In general, because of this previous disturbance, the overall vulnerability of this area is classified as moderate. Partial suspension in the moderate-vulnerability karst areas will protect these shallow mineral and organic soils. The Forest Service determined that the project will not likely affect the karst resources within the project area.

Old-growth Forest

This project proposes harvest in a young-growth stand, so there will be no effect to old-growth forest or associated biodiversity. There are no changes proposed to Old-growth Reserves. No further analysis for these resources is necessary.

Recreation

Recreational resources will be unaffected by implementing any of the alternatives because project activities would not overlap with known locations of previously identified recreational resources.

Scenery

The project is located in the foreground and middleground distance zones of the Tuxekan Passage, with a Scenic Integrity Objective of Low and Very Low. In either action alternative the harvest design would be fully within the Forest Plan scenery standards and guidelines as forested vegetation would screen activities from view.

Soils/Wetlands

Ulloa, Sarkar, McGilvery and Kitkun soils were identified within the unit, the proposed road line, and existing rock pit, as well as Kitkun soils in the southwestern part of the unit. Ulloa soils are well-drained, deep mineral soils overlying limestone. Sarkar soils are well-drained, mineral soils overlying limestone at shallow depths. McGilvery soils are well-drained, dry organic soils overlying bedrock at shallow depths. Kitkun soils are poorly drained, shallow organic soils that overlie bedrock. There was little evidence on the ground of past logging. Approximately 3 percent detrimental soil disturbance is expected to occur within the unit as a result of shovel harvest activities. Detrimental soil disturbance in the unit is expected to change from the existing 4 percent to 7 percent. This level of disturbance is not considered significant and the implementation of this project would meet the Region 10 Soil Quality Standards.

Unit design and road location are heavily influenced by the project area's soil resources. Factors such as steepness of slope, rock outcrops and riparian areas determine unit boundaries, road and landing locations, and intensity of treatment. No wetlands were identified in the proposed unit or road line. All applicable BMPs are listed in the unit and road cards.

Resources Which Could be Affected by the Alternatives

Fisheries Resources

Affected Environment

Fisheries

There are no fish streams within the proposed harvest unit. There is one Class I fish stream about 100 feet outside of the unit boundary that will be protected by leaving a no-cut buffer of at least 130 feet between the harvest boundary and the stream.

The stream channel types within close proximity to the harvest unit are palustrine and floodplain. The original harvest did not leave a stream buffer; however, the proposed unit is designed to leave an appropriate buffer for the channel type present so the harvest will not impact the stream channel. Risk of windthrow in the area is high; therefore, a reasonable assurance of windfirmness (RAW) zone will be reviewed by an interdisciplinary team (IDT) prior to implementation. The IDT will determine if the stream buffer needs additional protection from windthrow.

Essential Fish Habitat (EFH)

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires consultation with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect essential fish habitat, defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Essential fish habitat (EFH) includes streams, rivers, lakes, ponds, wetlands and other bodies of water currently and historically accessible to anadromous fish, as well as estuarine, intertidal, and marine waters.

There is one Class I stream and one Class II stream adjacent to the proposed unit. According to the karst resource report (Kovarik 2011), the proposed unit is completely underlain by limestone with well-developed karst drainage. This karst drainage system may be connected to the streams adjacent to the unit. The epikarst in this unit is moderate to well-developed on knobs and ridge tops with a complex mosaic of Sarkar and McGilvery soils, and several small sinks were noted. One significant resurgence feature was found along the southern portion of the unit and will be protected by a 100-foot no-harvest buffer. According to the watershed resource report (Thompson 2012), both catchments may still be experiencing elevated peak flows due to past harvest. With the potential elevated peak flows and the connect karst drainage system, there may be an increased potential of sediment transported into the stream systems. The effects from these short-term sediment deliveries would be minor and localized, and would not degrade fish habitat.

Threatened, Endangered, and Sensitive (TES) Fish Species

The Forest Service completed a Biological Assessment/Biological Evaluation (BA/BE) for this project. No stocks of Pacific salmon or steelhead originating from freshwater habitat in Alaska are listed under the Endangered Species Act. No critical habitat has been designated for federally listed or proposed threatened or endangered fish species in Alaskan waters and there is no known occupied or unoccupied habitat for these species within the project area. However, some individuals of the listed species originating from freshwaters in the lower 48 states may occasionally occur in the offshore marine waters to the west of Prince of Wales Island. In addition, there are no fish species designated as sensitive on the revised 2009 Alaska Region Sensitive Species List.

Environmental Consequences

Direct, Indirect, and Cumulative Effects – All Alternatives

Fisheries and Essential Fish Habitat

Stream temperature can increase as a result of timber harvest due to loss of shading when

riparian forest is harvested or blown down. Implementation of RMA buffers as prescribed on the unit cards will protect water quality and fish habitat by preventing the loss of shading and decreasing the risk of blowdown that could lead to increased stream temperature.

Potential effects on streamflow and sediment delivery are explained in the watershed section below. Increased streamflow can scour bed substrates, affecting the suitability of salmon spawning habitat. Since increased streamflow and sediment delivery effects would be short term, minor, and localized, they would not degrade or impair fish habitat in the project watersheds or project area. The proposed road construction in the project watersheds is not expected to impair stream condition due to implementation of BMPs and 2008 Forest Plan Standards and Guidelines.

The Forest Service determined that the Dargon Point project “may affect essential fish habitat, but effects would be minor and localized and would not degrade fish habitat.”

Threatened, Endangered, and Sensitive (TES) Fish Species

There will be no effects on federally listed threatened and endangered, or sensitive fish species resulting from the planned project because there are no known federally listed threatened and endangered, or sensitive fish species within the project area.

Mitigation Measures

Mitigation measures to avoid and minimize impact to aquatic resources are incorporated into Region 10 Forest Service best management practices (BMPs) and standards and guidelines (S&Gs). All road construction is required to follow all Region 10 S&Gs and BMPs, which include measures to protect riparian management areas, assure windfirmness along streams, and minimize sedimentation.

Some of the S&Gs and BMPs required include:

- leaving riparian management area (RMA) and reasonable assurance of windfirmness (RAW) buffers along Class I, II, and III streams;
- not filling or disturbing productive stream areas;
- minimizing sedimentation by not allowing harvest activities to accelerate sideslope surface erosion or mass wasting into stream channels;
- timing construction to avoid critical periods in life stages of aquatic resources;
- road crossings of streams should be designed to all applicable federal and state standards, guidelines, and BMPs to control effects of transportation systems on water quality and fish habitat;
- all timing restrictions to protect habitat, maintain fish passage, and mitigate adverse sedimentation should be followed during all construction and reconstruction of roads.

Watershed

Affected Environment

The project area includes portions of two 6th level watersheds. Both watersheds were determined to be “functioning properly” in the national Watershed Condition Classification (USDA FS 2011). The total project disturbance (up to 75 acres combined timber harvest and road construction) amounts to less than 0.25 percent of either watershed and will have negligible direct, indirect, or cumulative effects at this scale. Therefore, this analysis is based on “catchment areas” within these large 6th level watersheds. The project-scale catchments, feeding first-order streams, are much smaller than what would normally be analyzed for a 70-acre project, but provide a hard look at potential project effects at a relevant scale. For this project, two catchment areas were analyzed and are referred to as Catchment A (which contains about 66 acres of the unit) and Catchment B (which contains about 6 acres of the unit).

The Dargon Point project will require the construction of approximately 1 mile of new system road, including 0.26 mile constructed on existing decommissioned roadbed (Jacobson 2012). An existing rock pit would be expanded by about 1 acre. There are no stream crossings on proposed roads in Catchment A or B.

Environmental Consequences

The ability to actually measure changes in streamflow and water quality in response to the Dargon Point project is extremely limited due to the lack of baseline data and the natural range of variability of these parameters in response to climate and other factors. Nonetheless, sufficient information is available to disclose the magnitude and extent of likely effects of the project. The level (magnitude and intensity) of effects is characterized by descriptors which account for how measurable the effect would be, how widespread the effect is likely to be, and how long it is likely to last. Descriptors of effects are:

- Negligible: Effects would be undetectable or if detected, would be considered slight, detectable only at the site, and last less than a day.
- Minor: Effects would be measurable, although the changes would be small, localized to the site or affected stream reach, and last less than a week.
- Moderate: Effects would be measurable at the stream reach scale, and last more than a week.
- Major: Effects would be readily measurable at the stream reach or sub-watershed scale, and would last for years.

Direct and Indirect Effects – All Alternatives

Streamflow

Changes in streamflow are difficult to measure and are likely to be indistinguishable from the influence of climate-trends. Harvest area amounts to 22 percent and 4 percent of catchment-scale harvest, respectively. The Dargon Point project, when considered alone, could result in a minor increase in peak streamflows in Catchment A. It is unlikely to affect peak streamflows in Catchment B and is unlikely to affect low streamflows in either

catchment. Commercial thinning would have less effect than clearcutting, commensurate with the amount of forest canopy and basal area retained.

At the small catchment scale analyzed here, the Dargon Point project will likely delay recovery and extend peak flow increases in both catchments. This effect is considered moderate since it might be detected at the stream reach scale in these small catchments and would last for years. However, the effect is not significant, due to the very small scale analyzed. The total project disturbance (up to 75 acres combined timber harvest and road construction) amounts to less than 0.25 percent of the [6th level] watershed and will have negligible direct or indirect effects at this scale. This effect is not highly controversial and is not likely to adversely affect the environment. More information is in the watershed resource report.

Water Quality (Sediment)

The slight amount of traffic in general and quick turnarounds for this small project, combined with good quality rock present for road construction, suggest the roads are low risk for sediment sources.

Despite the absence of stream crossings, the Dargon Point project could result in a temporary increase in sediment delivery to streams during road construction and quarry expansion. However, effects of the short-term sediment delivery from these activities would be minor and localized, and would not degrade water quality.

Cumulative Effects – All Alternatives

Streamflow

Given the best available information from peer-reviewed literature and a worse-case scenario for recovery, affected streams in these catchments likely experienced increased peakflows in the past and have not fully recovered to pre-harvest conditions. These effects are diminishing with time as a result of forest regrowth. The total project disturbance (up to 75 acres combined timber harvest and road construction) amounts to less than 0.25 percent of the [6th level] watershed and will have negligible cumulative effects at this scale. There are no ongoing or foreseeable projects that will additionally affect streamflow in these catchments.

Water Quality (Sediment)

Other foreseeable projects include ongoing road maintenance on other roads in these catchments. Road maintenance could result in additional temporary increases in sediment delivery to streams during road construction and quarry expansion. Effects of the short-term sediment delivery from these activities would be minor and localized, and would not degrade water quality.

Mitigation

Mitigation measures to avoid and minimize impact to aquatic resources are incorporated into Forest Service BMPs and Region 10 standards and guidelines.

Key BMPs incorporated into the Dargon Point Project include:

- All Class I, II, and III streams would receive no-harvest buffers according to Tongass Timber Reform Act and the Forest Plan (Brigham 2012)

- High vulnerability karst features would receive no harvest buffers (Kovarik 2011)
- Roads were located to avoid the high vulnerability karst features, as well as other karst features (Jacobson 2012). Road sidecast and excess excavation would not be placed near karst features.
- Use of ground-based equipment would minimize yarding disturbance and would meet soil quality standards (Saari 2012).
- Karst features within the proposed unit would be protected by designating them with stream protection flagging to minimize adjacent ground disturbance, control equipment crossings, and require logging debris removal.
- Roads would be placed into storage after timber harvest is completed (Jacobson 2012).

Site-specific BMPs are listed in the unit and road cards and in the watershed resource report.

Botany

Affected Environment

Biological evaluations are required for the sensitive plant resource for any project with ground disturbing activity. Once the project is initiated, prefield review is done to determine whether or not an on-the-ground survey is required.

In June 2011, the District ecologist conducted a rare plant survey for this project, in which potential suitable habitat was identified for each species of interest. The survey effort was focused in those areas. A detailed map showing the exact route of the project area survey is on file at the Thorne Bay Ranger District and has been incorporated into the Natural Resource Information System (NRIS) survey layer. Complete plant survey field forms can also be found in the project record at the Thorne Bay Ranger District.

No sensitive plants were located within areas likely to be affected by project activities. The surveys took place at the appropriate time of year to identify sensitive plants.

Our known existing condition for rare and sensitive plants is maintained spatially within the NRIS national database.

Sensitive Plants

On February 2, 2009, the Regional Forester approved an updated sensitive species list for the Alaska Region. The following table (Table 3) includes a list of the sensitive plants as well as their suspected habitats.

Table 3: Alaska Region Sensitive Species List, known and suspected to occur in the Dargon Point project area and on the Thorne Bay Ranger District

Scientific Name	Common Name	Habitat	Occurrence	
			In Project	On TBRD
<i>Botrychium spathulatum</i>	Spatulate moonwort	Calcareous areas, upper beach meadows, well drained	Suspected	Suspected
<i>Botrychium tunux</i>	Moosewort fern	Calcareous areas, upper beach meadows, well drained	Suspected	Suspected
<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	Large yellow lady's slipper	Calcareous, open forest, beach/forest ecotone	Suspected	Known
<i>Ligusticum calderi</i>	Calder's loveage	Forest edge	Suspected	Suspected
<i>Lobaria amplissima</i>	Lichen, no common name	beach/forest ecotone	Suspected	Known
<i>Piperia unalascensis</i>	Alaska rein orchid	Open forest	Suspected	Known
<i>Platanthera orbiculata</i>	Lesser round-leaved orchid	Forest, forest edge, open forest	Suspected	Known
<i>Romanzoffia unalascensis</i>	Unalaska mist-maid	Forest edge	Suspected	Known
<i>Sidalcea hendersonii</i>	Henderson's checkermallow	Beach/forest ecotone	Suspected	Suspected
<i>Tanacetum bipinnatum</i> subsp. <i>huronense</i>	Dune tansy	Upper beach meadow	Suspected	Suspected

Rare Plants

Rare plants on the Tongass National Forest are designated due to several factors. Mainly, they are uncommon plants with population viability, rarity or conservation concerns. They are known or suspected to occur on the Tongass and ranked by Alaska National Heritage Program (ANHP) Rare Vascular Plant Tracking List as S1 or S2 within the State (meaning that they are imperiled or critically imperiled in the State because of rarity or other factors making it vulnerable to extirpation from the State), but they are not listed on the Alaska Region Sensitive Species List. The Rare Plants List is developed through consultation and agreement by District, Forest and Regional ecologists and botanists. It is a dynamic list that has the flexibility to change as taxons are reassessed, increasing numbers of species are found, or as concerns arise. Table 4 includes the rare plants suspected and their habitats within the project area.

Table 4: Rare plants suspected in the project area

Common Name	Scientific Name	Habitat
Western meadow rue	<i>Thalictrum occidentale</i>	Streams and lakeshores
Maidenhair spleenwort	<i>Asplenium trichomanes</i>	Limestone cliffs at low elevation
Northern moonwort	<i>Botrychium pinnatum</i>	Forest
Lanceleaf grapefern	<i>Botrychium lanceolatum</i>	Forest, wetland fen
Angle leaved bittercress	<i>Cardamine angulata</i>	Streambanks, disturbed sites, beach edge
Alaska oniongrass	<i>Melica subulata</i>	Forest edge, near beach or muskeg
Cutleaf foamflower	<i>Tiarella trifoliata</i> spp. <i>lacinata</i>	Forest
Twinberry honeysuckle	<i>Lonicera involucrata</i>	Beach and forest edge

Rare Plants Known in the Project Area

The only known rare plant found during field surveys was maidenhair spleenwort (*Asplenium trichomanes*). The maidenhair spleenwort is ranked as a G5S1, meaning the species is secure globally, though it may be quite rare in parts of its range, especially at the periphery. The species is considered critically imperiled in the State because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction.

Maidenhair spleenwort is a small fern that grows clustered on short rhizomes. The rachis of this fern is black, resembling the more common maidenhair fern from which it has adopted its name. At this location, the maidenhair spleenwort was found just outside of the young-growth stand proposed for harvest, near saltwater, on short, but nearly vertical limestone cliffs. No maidenhair spleenwort was found within the young-growth stand, even though suitable habitat is available. All known locations of maidenhair spleenwort on the District are in relatively shady areas within old-growth timber at very low elevations near saltwater.

Environmental Consequences

This section describes the direct, indirect, and cumulative effects of the action and no-action alternatives to the sensitive and rare plant species and their suitable habitat.

Direct effects of the proposed project include immediate changes in habitat conditions and disturbance to plant populations during project activities. Direct effects occur within the footprint of the proposed activities. For example, the use of heavy equipment for thinning and harvest work could crush or trample plants.

Indirect effects include effects that occur later in time as a repercussion of the project, such as changes in hydrology, evapotranspiration, and light availability. Since indirect effects are difficult to analyze, an area within 100 meters (or approximately three tree

heights) is commonly used on the Tongass to distinguish the area in which populations and habitats may be indirectly affected.

Cumulative effects analysis includes the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or individual undertakes such actions. Cumulative effects for rare and sensitive plants are typically analyzed on the island-wide scale because it is a natural geographic boundary, which can sometimes limit pollination and dispersal.

Direct and Indirect Effects

Alternative 1 – No Action

Under the No-action Alternative, no direct or indirect effects to rare or sensitive plants are anticipated as a result of this project.

Alternatives 2 and 3

Sensitive Plants: Under Alternatives 2 and 3, no direct or indirect effects from thinning, clearcutting, or road building are anticipated to occur to any known sensitive plants. See the Biological Evaluation (Lease 2012) for full analysis for sensitive plants.

Rare Plants: No rare plants are known to occur within the direct effects area for the proposed action. It is possible that undetected individuals and suitable habitat may be affected.

Maidenhair spleenwort is the only known rare plant in the project area. The action alternatives, as proposed, are likely to indirectly affect the known populations of maidenhair spleenwort found outside of the proposed treatment area. Given the change in the light regime for the thinning and clearcut prescriptions, it is possible that the effects from adjacent proposed clearcutting may have a slightly higher impact than the indirect effects from thinning. However, given the past harvest that has occurred, and the persistence of this fern at this location, it is possible these indirect effects may impact some individuals of this population, but it is not likely to affect its persistence in the long-term.

Cumulative Effects

Alternative 1 – No Action

The No-action Alternative of this project will not contribute to the overall cumulative effects to rare and sensitive plants on Prince of Wales Island, given that no direct or indirect effects are anticipated.

Alternatives 2 and 3

Current use of the existing roads, streams, and upland areas including hunting and fishing, trapping, berry picking, camping, OHV, guided tourist destinations, free use, commercial logging, road maintenance, firewood harvest, and other subsistence and recreation pursuits will continue with the action alternatives. These activities have potential to alter suitable habitat and impact rare and sensitive plants; however, any future ground-disturbing activities on National Forest System land will be addressed through NEPA and a biological evaluation will be done for all sensitive plants to disclose and mitigate for any potential effects.

The only known rare or sensitive plant likely to be affected by the action alternatives is maidenhair spleenwort; therefore, it is the only rare or sensitive species with potential cumulative effects as a result of the proposed project. Given the past, present and reasonably foreseeable actions in the project area and on the island, it is possible individual plants have been adversely affected. However, given the suitable habitat for this species, it is unlikely there are future management activities occurring in its suitable habitat. On the Thorne Bay Ranger District, this plant has only been found in old-growth near saltwater, easily within the area covered by the Beach and Estuary Fringe Standards and Guidelines in the Forest Plan.

Overall, this project is not expected to contribute to any long-term cumulative effects for rare or sensitive plants.

Invasive Plant Species

Affected Environment

Non-native (invasive) plant surveys were completed for this project. Surveys were completed along closed roads, the existing rockpit along the NFS road 2060130, throughout the treatment unit, along the beach, and along karst features adjacent to the proposed treatment area. The only high-priority invasive plant found was reed canarygrass, which was found along a closed road in one isolated patch, along the beach, and in a resurgence/sinkhole next to more-recently harvested young-growth.

Environmental Consequences

This section describes the direct, indirect, and cumulative effects of the project alternatives on invasive plant potential introduction and spread.

The direct effects of timber harvest or thinning are relatively immediate and occur within the footprint of the proposed activities. Direct effects can include creating suitable habitat, or increasing potential vectors for invasive plant introductions. Indirect effects occur at a later time as a result of the project, such as changes in hydrology, evapotranspiration, and light availability. Due to the nature of invasive plants, it is difficult to distinguish direct and indirect effects. Direct effects can be measured by the amount of potential change in habitat or ground disturbance and the change in vector potential. However, whether or not an invasive plant has been introduced usually is not known until a later time.

Cumulative effects analysis includes the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or individual undertakes the actions. Cumulative effects for invasive plants are typically analyzed on the island-wide scale because the island is a natural geographic boundary which can limit pollination and dispersal.

Direct and Indirect Effects

Alternative 1 – No Action

The No-action Alternative is not expected to have any direct or indirect effects for invasive plants.

Alternatives 2 and 3

Habitat Alteration Expected as a Result of Project: Habitat alterations would be the result of ground-based yarding and road construction, resulting in some soil disturbance and exposure of mineral soils.

In addition, the proposed timber harvest associated with the action alternatives will increase the light levels, providing habitat more conducive to most invasive plant species. The proposed thinning or partial harvest will create less light in the understory, and reach the stem exclusion phase faster than clearcutting. Therefore the risk for invasive plant introduction or spread due to habitat alteration would be slightly higher in the clearcutting alternative than in the thinning alternative. However, given how quickly the vegetation in the area is known to regenerate after harvest, and the fact that no invasive species have been found within a closed canopy forest condition, it is likely that over the long-term, the risks would be similar to the existing condition.

Increased Vectors as a Result of Project Implementation: The primary potential vectors for the spread of invasive plants in this project will be from ground-based yarding and road building equipment.

The expected overall risk of invasive plant introduction and spread, as a result of project's direct and indirect effects, is low. No significant effects are expected.

Cumulative Effects

Alternative 1 – No Action

The No-action Alternative for this project is not expected to contribute to the possible cumulative effects for invasive plants on Prince of Wales Island.

Alternatives 2 and 3

Due to the traffic throughout Prince of Wales (including recreation, subsistence, community access, and management activities), the overall risk of invasive plant spread and introductions is moderate. Recent decision documents that impact potential introduction and spread include the Access Travel Management Plan (ATM), and the Logjam Timber Sale. The ATM proposes to store or decommission 698 miles (over 65 percent) of the roads, and convert an additional 10 miles to hiking trails. This will reduce the miles of road frequently traveled and decrease the chance of new introductions.

Given mitigation measures incorporated into the unit cards, the overall cumulative risk of invasive plant spread is expected to be low, and no significant affects are expected.

Silviculture

Affected Environment

The proposed harvest area is dominated by Sitka spruce, with western hemlock common, with western redcedar represented on a much smaller scale. The species composition in the project stand, as computed from stand exam data is 86 percent Sitka spruce, 14 percent western hemlock and less than 1percent Western redcedar.

Trees are competing for light and few, if any, new trees are being established. Tree canopy closure is high and predominantly composed of a single layer of dominant, codominant

and intermediate spruce and hemlock. Out-competed trees are dying or have died, and growth of understory vegetation, important for wildlife habitat, is restricted. Average stem height-to-diameter ratios over most of the stand are within the range suitable for intermediate treatment; however, portions of the stand consists of taller, more-spindly trees making these areas unstable if predisposed through thinning due to wind, snow and ice damage. Pockets of windthrow are present in the southern portion of the stand. Snags and downed trees are comprised of mostly intermediate and smaller-sized material from trees that have succumbed to suppression mortality; however, small groups of larger trees of the dominant and co-dominant crown have blown over within the stand.

Environmental Consequences

Silvicultural Systems

The effects analysis area used is the proposed 70-acre Dargon Point project stand, as silvicultural treatments are restricted to the project area. Silvicultural treatments outside the project area will be covered by future environmental analysis.

Silvicultural systems are used to manage, harvest, and re-establish stands of forest trees for the purpose of meeting pre-determined objectives. The Forest Plan Standards and Guidelines and USDA Forest Service Manual 2400 (Timber Management) provides detailed information about the silvicultural systems recommended for the Tongass National Forest. Two-aged management results in a seedling stand with varying levels of older-aged residual trees. Uneven-aged management results in a stand of younger trees interspersed with older trees, either in clumps or distributed across the stand. Even-aged management results in the conversion of mature stands to faster growing stands of a single age. The post-harvest conditions of the forest stand for all systems are dependent upon the existing plant community, the retained canopy structure, and advanced regeneration. Species composition is monitored to ensure that the mix of species is roughly the same as expected on the existing site.

The Dargon Point project area analysis used a variety of silvicultural systems tailored to site-specific objectives. The objectives include:

- Maintain, prolong, and/or improve understory forage production, and improve habitat distribution, including future old-growth characteristics in young-growth timber stands,
- Maximized wood fiber production for future human use,
- Favorable timber sale economics and logging feasibility.

A complete silvicultural prescription for the entire length of the rotation will be written for this stand. These prescriptions provide guidance for treatments following the proposed timber harvest for this project, including subsequent entries, thinning, and pruning.

Even-aged System

All or the majority of the merchantable trees would be harvested. The objectives are to create a fast-growing stand of trees to maximize wood fiber production, regeneration of desirable species such as spruce, reduction of disease, reduction of windthrow, provide favorable timber sale harvest economics and improve logging feasibility. Natural

regeneration is used to restock the harvest units. Areas must be reforested with a minimum of 300 trees per acre by the fifth year following harvest (FSH 2409.17, p. 5). This is monitored with regeneration surveys and certification of successful reforestation.

Clearcutting: The cutting of all or the majority of the trees, leaving less than 15 percent of the original stand's basal area following one harvest entry. It produces a fully exposed microsite for the development of a new age class.

Justification for clearcutting: Clearcutting is prescribed where there are no other conflicting resource issues. This treatment is prescribed to preclude or minimize the occurrence of potentially adverse impacts from logging system damage, or windthrow. Clearcutting also increases the regeneration of desirable species and removes decayed trees.

Culmination of Mean Annual Increment: The age at which a managed stand is harvested for regeneration purposes is called the rotation age. The Forest Plan defines this as the period between regeneration establishment and final cutting. Agency policy is that a rotation age can be no earlier than the age at which 95 percent of culmination of mean annual increment (CMAI) occurs (USDA FS 2008b, p. B-14). CMAI is the age in the growth cycle of a tree or stand at which the mean annual increment for height, diameter, basal area, or volume is at a maximum. For the National Forests, CMAI is based on the expected merchantable cubic foot volume growth at the stand level according to the management intensities and utilization standards assumed in the Forest Plan. On the Tongass, this translates to a range of rotation ages of about 60 to 170 years. CMAI varies by stand productivity and past management of the stand. The 70 year old Dargon Point stand proposed for harvest with this project is estimated to have reached CMAI. Because of this, the stand may be considered for a final cutting according to Forest Plan CMAI requirements.

Stand development after clearcutting is well documented and follows a general pattern:

- **Stand Initiation:** A new cohort with thousands of newly germinated trees, as well as advance regeneration, occupies the site. Residual shrubs and herbaceous plants respond to the increased light for 8 to 10 years, when the conifers begin to overtop the shrubs and herbs. Stand species richness is greatest at this stage of development.
- **Stem Exclusion:** By age 15 to 25 years, the new cohort of trees begins competing for light and few, if any, new trees are added to the cohort. Out-competed trees begin to die. Understory plants decline rapidly and can be completely eliminated in 35 years unless openings are created in the overstory.
- **Understory Reinitiation:** The new cohort continues to suppress the understory shrubs and herbs for up to 100 years with understory plants not re-appearing until age 120 to 150 when overstory trees begin to die and allow enough light to reach the canopy floor.

Intermediate Treatments - Thinning

Removal of the forest overstory alters the microsite conditions that influence density and species composition of the understory vegetation. Different components dominate the stand at different stages, and the overall forest structure changes as the new stand

develops. The level of change depends on age of the stand, site productivity, the type of silvicultural treatment applied during harvest and subsequent treatments applied during stand development.

While stagnation almost never occurs in forested stands in Southeast Alaska, many stands develop tall and spindly trees and can be unstable, predisposing stands to wind, snow, and ice damage. Trees allocate energy in the following order: respiration, needles and roots, reproduction, height growth, diameter growth, and lastly resistance to disease. As stands enter the stem exclusion, stage trees develop high height-to-stem diameter ratios. For unthinned stands, a height-to-diameter ratio of approximately 95 has been found to be too high for good stand stability. Thinning stands at the appropriate time can raise average diameters and increases the merchantable board foot yield. Stand stability is also improved by lowering or maintaining height-to-diameter ratios.

On the Tongass National Forest, natural regeneration often results in stands with too many trees per acre following clearcut harvest, reducing individual tree growth and shading out understory vegetation that may be valuable to some wildlife species. Thinning is designed to improve future tree growth by reducing stand density, thus reducing the competition between trees for sunlight. Increased sunlight as a result of thinning also allows for greater shrub and forb growth. Thinning is also used to manipulate species composition, and both species of cedar are usually favored as leave trees to increase their abundance in previously harvested areas.

Direct and Indirect Effects

The proposed timber harvest would change the understory plant production, create more diversity in stand structure within the 1,000-foot beach fringe, create more windfirm conditions and provide for both short-term and long-term production of timber. Change would vary by alternative based on the silvicultural prescription.

Alternative 1 – No Action

Understory plant production and current stand trajectory toward old-growth conditions will not be affected by management activities. Tree growth and mortality will continue to progress naturally. Without treatment it is expected that tree growth and subsequently growth of stand volume will slow. Tree height-to-diameter ratios will increase, potentially limiting future management options due to susceptibility to windthrow concerns. Other forestlands with LUDs that allow timber harvest would be needed to meet the objective of providing an economic supply of timber to support local jobs.

Alternative 2 – Proposed Action

Crown Thinning: Approximately 54 acres that occur within the TM LUD will be thinned by an ITS crown thinning, retaining 50 percent of the stand's basal area. This is an intermediate treatment designed to harvest commercial volume while enhancing growth, quality, vigor and composition of the stand prior to a final harvest. The resulting stand will remain generally even-aged, tending to two-aged where residual trees exist in higher concentrations. Regeneration is not intended with this treatment. Regeneration that results from this treatment will be slow growing due to competition with the retained overstory trees and would likely be western hemlock given its tolerance for shade. Understory plants that are currently present in the stand are expected to become more abundant in this portion of the stand compared to understory in the unthinned portion of this stand. Though

less windfirm in the short-term than the existing condition or the clearcutting alternative, evidence of a similar treatment associated with the nearby Prince of Wales Commercial Thinning Study indicates that a crown thinning is relatively windfirm.

Variable density thinning: This treatment includes an approximate 4-acre skip (no-harvest) corridor adjacent to the beach along the far western portion of the stand. Outside of this no-harvest area, trees will be thinned by ITS to approximately 50 percent of the existing stand's basal area. Thinning will be lighter along the skipped corridor than within that portion of the beach fringe adjacent to the clearcut. Additionally, roughly 10 – 15 percent of this thinned area may be converted to small gaps, approximately 1/4 acre in size. Assuming regeneration establishes in gaps, the resulting stand will be a two-aged stand tending towards uneven-aged over time. Stand growth, quality and vigor will be less than the crown thinning portion due to a higher retention of slower-growing hemlock trees and generally favoring trees that are defective, and desirable for wildlife habitat. Gaps approximately 1/4-acre in size may not regenerate with trees, or would be slower to regenerate with trees than larger openings that are created by even-aged management. Hemlock will likely be the more successful species to establish in these gaps given that hemlock is prevalent in this portion of the stand and has a greater tolerance for shade compared to spruce or western redcedar. Understory plants currently present in the stand are expected to reestablish and be more abundant in these gaps for a greater length of time compared to understory conditions in the thinned portion or the unthinned portion of this stand. This alternative is expected to yield roughly 1.4 MMBF of sawlog material.

Alternative 3

Clearcutting: In this alternative approximately 54 acres will be harvested by clearcutting. Rapid natural regeneration of spruce, hemlock and western redcedar is expected, with spruce being more prevalent than hemlock and redcedar only a minor component of the regeneration. This regeneration will likely be reestablished over this portion of the stand within the first 2 to 3 years following harvest. Understory plants such as shrubs and forbs are expected to reestablish and become abundant over the next 15 to 20 years. Over time, the stand canopy closes and restricts light to the forest floor. Different components dominate the stand at different stages, and the overall forest structure changes as the new stand develops. The level of change will depend on the type of silvicultural treatment applied during stand development. As the stand develops, this portion of the stand will show less variability in tree diameter and height than the thinned portion. Management, such as thinning the harvested acres, will improve stand conditions for future timber production.

Variable density thinning: The remaining 16 acres of the stand will be treated by a variable-density thinning as described above for Alternative 2.

This alternative is expected to yield roughly 2.5 MMBF of sawlog material.

Cumulative Effects – All Alternatives

The analysis area for cumulative effects is the entire Dargon Point project area. Cumulative effects to forest vegetation have resulted from timber harvest and intermediate silvicultural treatments. Scattered windthrow has occurred along exposed stand boundaries after past harvest and road construction activities.

All previous harvest areas have been certified as regenerated.

Roughly 480 acres of young-growth have been precommercially thinned in the project area to maintain understory plants important for wildlife habitat and improve tree growth and vigor.

Transportation

Affected Environment

National Forest Transportation System roads are constructed to provide access to National Forest System (NFS) lands and are included in the Forest Development Transportation Plan (see Transportation Standards and Guidelines in Chapter 4 of the Forest Plan). They are considered NFS roads as are other roads that are wholly or partially on NFS lands and are intended to be maintained for the long term. With the exception of a few administrative sites and campgrounds, most forest roads are single lane, constructed with blasted quarry rock, and designed for off-highway loads.

For the Tongass, the demand for roads has primarily been a function of the demand for access to timber resources. The amount of future construction is anticipated to be largely determined by the need to access timber resources.

Road Maintenance and Reconstruction

The maintenance and reconstruction of the existing NFS roads depends largely on the volume of timber hauled and, to a lesser extent, on recreational use. Road maintenance consists of superficial periodic repairs to an existing road surface, brushing, cleaning, and repairing drainage features. These tasks are performed to keep the roads in the safe and useful condition for which they were designed. Repairs may be accomplished as annual maintenance. Road reconditioning is heavier maintenance of an existing road, such as culvert replacement, surface rock replacement and subgrade repair.

Maintenance and reconditioning of existing NFS roads is an ongoing process that occurs on a periodic basis. Normally this type of work is determined to fit the category of routine repair and maintenance of roads that do not individually or cumulatively have a significant effect on the quality of the human environment and may be categorically excluded (FSH 1909.15, 321.12). The maintenance and reconditioning of NFS roads in the project area may occur before, during, and after the project analysis. This work is done through separate service contracts to reduce the backlog of deferred maintenance, recondition roads to comply with BMPs, and maintain the existing infrastructure for National Forest management activities. The timing of this work may coincide with this projects analysis, but is not part of this project.

As timber is sold as part of this project, cost collections for maintenance and surface rock replacement (where applicable) will take place. The collections offset the cost of road maintenance.

Project Access

Access for Dargon Point project begins on existing road 2060130. At milepost 0.69 on road 2060130, a decommissioned road prism intersects road 2060130.

Road grades run slightly adverse with maximum adverse grades to 12 percent.

Topography is moderate; generally side slopes are less than 25 percent. Several hundred linear feet have side slopes to 45 percent; this is outside the unit on the approach. No streams or drainages are crossed and no culverts are anticipated to be required.

An existing rock pit is located at milepost 0.65 on road 2060130. This pit is planned for additional development to provide roughly 6,500 cubic yards of rock for road construction.

Environmental Consequences

Direct and Indirect Effects

An Access and Travel Management Plan (ATM) for NFS roads on Prince of Wales Island was completed in September 2009. The Dargon Point EA does not propose any changes to the travel management plan as determined in the ATM, but does propose new NFS roads that would be used to facilitate timber harvest and then would be put into storage after timber harvest is complete. No facilities such as marine access facilities (MAF) are located or proposed within the project area.

Alternative 1 – No Action

Under this alternative, no new road construction will occur. There will be no change in the amount of road or access in the project area. Road maintenance such as road brushing and cleaning culverts will continue as part of routine maintenance.

Alternatives 2 and 3

Both action alternatives include approximately 1 mile of new NFS road construction and additional development of one rock pit to facilitate this construction. After timber harvest activities are completed, the new road will be closed and motor vehicle use will be eliminated on the new road. No streams or drainages are crossed and no culverts are anticipated to be required. There will be minimal effect by 1 mile of new road that will be closed following this project.

Cumulative Effects – All Alternatives

The cumulative effects analysis area for the transportation system includes the project area and road segments leading into the project area. Past, present and reasonably foreseeable actions considered in this analysis include NFS 2000000 road improvements that may increase the use of the area roads as access to the project area will be quicker and easier from outlying communities.

Maintenance of existing NFS roads will be ongoing in the project area regardless of the alternative selected. Effects to the transportation resource are not significant because no overall change to the existing conditions is anticipated.

Wildlife Resources

Introduction

General effects to wildlife from this project will include a slight increase in road density and temporary disturbances while survey and implementation activities are underway. Changes to habitat structure would be expected under the action alternatives, including

opening of the canopy, increased forage production in the understory, and return of proposed clearcut areas to stand initiation conditions. Treatments, in the beach buffer, will be designed to improve wildlife habitat and facilitate wildlife movement through the stand. Wildlife surveys for raptor nests and animal dens were conducted in 2011 within the proposed treatment area. Additional surveys were completed in spring and summer of 2012.

The following sections summarize the effects of the proposed activities on selected threatened, endangered, candidate and proposed species (TES), and Alaska Region sensitive species that may occur in or near wildlife analysis area (WAA) 1422. More information on other species, such as management indicator species, endemic mammals and migratory birds, is available in the wildlife resource report in the project record, including a summary of species and anticipated effects.

Analysis Area

The analysis area for direct, indirect, and cumulative effects is WAA 1422, encompassing about 198 square miles of old-growth forest, muskeg, lakes and young-growth stands of varying ages on the western shore of north-central Prince of Wales Island. The project area is located in the west-central portion of this WAA.

Affected Environment

Approximately 38 percent of the productive forest lands in WAA 1422 have been harvested. Most of that harvest occurred between the 1970s and 1990s, and much of it is either already in or about to enter stem exclusion. Recent analyses have been conducted in WAA 1422 for the Big Thorne Timber Sale, so these analyses provide the best and most recent estimates of existing condition in this area. Current deer habitat capability is about 16.5 deer/mi². That number is expected to decrease over time as more deer habitat enters the stem exclusion stage in WAA 1422 (estimated at about 15 deer/mi² by 2039; USDA FS unpublished data (July 19, 2012 v2) located in the Big Thorne project record).

Below 1,200 feet in elevation, road density in WAA 1422 is currently about 1.9 miles/mi² for existing roads (not including the decommissioned roads), and 2.1 miles/mi² for total roads (including decommissioned roads).

Threatened or Endangered Species

Species listed as threatened or endangered, or sensitive, which do not occur in or around the analysis area, and for whom key habitats do not occur, will not be addressed further in this document. Species that could occur in or near marine waters or terrestrial areas in or near the project area include humpback whales (endangered), Steller sea lions (threatened), and goshawks (sensitive). These are discussed in more detail in the wildlife resource report. Also see Table 5.

Humpback whales

Humpback whales are the most abundant of the seven species of endangered whales that occur in Southeast Alaska waters, from Yakutat Bay south to Queen Charlotte Sound. The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring (*Clupea harengus*) and euphausiids (NMFS 1991, p.18). They feed in Southeast Alaskan panhandle waters from

about May through December, although some have been seen every month of the year. Peak numbers of whales are usually found in near shore waters during late August and September, but substantial numbers usually remain until early winter (NMFS 1991). Specific Forest Plan direction for humpback whale is given on pages 4-98 to 4-99 (USDA FS 2008a).

Steller sea lion

Steller sea lion habitat includes marine and adjacent terrestrial areas of the Tongass National Forest. Adult Steller sea lions congregate at rookeries on remote islands, often in exposed areas not easily accessed by humans or mammalian predators. The breeding season generally extends from late May to early July (NMFS 2008, p. I-2). During fall and winter many sea lions disperse from rookeries and congregate at haulout areas which can include rocks, reefs, beaches, breakwaters, navigational aids, or floating docks. Specific Forest Plan direction for sea lions is given on pages 4-93 and 4-98 to 4-99 (USDA FS 2008a).

Sensitive Species and Management Indicator Species (MIS)

Sensitive species are those plant and animal species identified by the Regional Forester for which population viability is a concern on NFS lands within the region. Discussions for all five Region 10 Sensitive species can be found in the wildlife resource report, but Queen Charlotte goshawk will be discussed here in detail.

Queen Charlotte / northern goshawk

Goshawks inhabit forested lands favoring dense stands of Sitka spruce or western hemlock trees in mature to old-growth forest types (productive old-growth or POG) providing a dense canopy and a diverse understory. The mean percentage of canopy cover value of 50 percent in Southeast Alaska was lower than that reported in the literature for this species, which generally ranges from 60 to 95 percent (Iverson et al. 1996, p. 52). Occasionally, goshawks will nest in younger forests or in smaller patches of trees, and forage in young forest as well as along edges and in openings (Boyce et al. 2006). The Forest Plan Standards and Guidelines for goshawks (USDA FS 2008a, pp. 4-99 to 4-100) protect nest areas by maintaining an area of not less than 100 acres of POG, if it exists, generally centered over the nest tree or probable nest tree. There are no known goshawk nests in the project area, nor was any evidence of goshawks found during field reconnaissance of the area during site visits in 2011 and 2012.

MIS are vertebrates or invertebrate species whose response to land management activities can be used to predict the likely response of other species with similar habitat requirements (FSM 2631.3). MIS on the Tongass are associated with POG forest whose canopy provides important cover and forage habitat for wildlife, and reduces snow accumulations in the understory during the winter but is open enough to provide understory vegetation during the spring, summer, and fall. Ten of the thirteen wildlife MIS identified for the Tongass may occur in the project area, including wolf, marten, bald eagle, black bear, brown creeper, hairy woodpecker, red-breasted sapsucker, river otter, Sitka black-tailed deer, and Vancouver Canada goose. Six of the MIS also specifically use stream (riparian) habitats and five of the species use estuarine habitats.

Alexander Archipelago Wolf

The Alexander Archipelago wolf (*Canis lupus ligoni*) was selected as a management indicator species for the Forest Plan because of population viability concerns in some

areas of the Tongass National Forest. This species inhabits the mainland and the larger islands south of Frederick Sound (MacDonald and Cook 2007) where its densities are closely tied to the population levels of their prey (primarily Sitka black-tailed deer). Important components of wolf management include maintaining core area habitats with low road density and providing, where possible, adequate deer habitat to support a deer population capable of sustaining wolves, generally thought to be about 18 deer/mi² (USDA FS 2008a, p. 4-95).

Current deer habitat capability is estimated to be about 16.5 deer/mi² in WAA 1422 (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record). This suggests that, based on modeled deer densities alone, the project area WAAs may not be capable of sustaining wolves without deer immigration from neighboring areas. However, this does not take into account the fact that wolves are highly mobile and move between WAAs and thus wolf packs may be supported by a number of adjacent WAAs (Person and Logan 2011); the potential benefits of young-growth management for deer habitat and road management for controlling hunter access; or the presence of large core habitat areas in the central part of the island with no roads [Honker Divide Large OGR (200,000+ acres) and the Karta Wilderness (about 40,000 acres)]. Changes in estimated deer densities and road access and deer habitat provide general measures of effects.

Human access on roads may result in wolf mortality by both legal and non-legal harvest (USDA FS 2008b, p. 3-284). The Forest Plan states that a road density of 0.7 to 1.0 mi/mi² or less may be necessary to reduce harvest-related mortality risk where locally unsustainable wolf mortality has been identified. Person et al. (1996) reported that wolf harvest increased twofold when total road density below 1,200 feet elevation exceeded 0.7 mi/mi².

Although most wolves (i.e., 59 percent) are harvested by hunters and trappers working from boats, harvest-related wolf mortality is correlated with roads and other habitat features which influence their vulnerability to harvest (Person and Russell 2008; Person and Logan 2011). Person and Russell (2008) found that rate of harvest of both resident and non-resident wolves increased with density of roads, which provide access to hunters and trappers; however, road densities of 1.5 mi/mi² (0.9 km/km²) or greater had little additional effect on harvest rates. This study did not differentiate between open and closed roads though the authors stated that road status likely had an important influence on wolf mortality.

Changes in road access and deer habitat provide general measures of effects. Road density in WAA 1422 is currently about 1.9 mi/mi² for existing roads below 1,200 feet in elevation, and 2.1 mi/mi² for total roads below 1,200 feet in elevation (including decommissioned roads). This road density exceeds both the Forest Plan recommendation (0.7 mi/mi²) as well as the threshold of 1.5 mi/mi² suggested by Person and Russell (2008).

Alexander Archipelago wolf has been petitioned for listing under the Endangered Species Act and USFWS is currently assessing this petition.

The Forest Plan provides standards and guidelines to maintain sustainable wolf populations, protect den sites, provide prey habitat and manage road access (USDA FS 2008a, p. 4-95).

Environmental Consequences

Direct, Indirect and Cumulative Effects for Threatened and Endangered Species – All Alternatives

Threatened and Endangered species that could occur in or near the project area include humpback whales and Steller sea lions. Direct effects to humpback whales and Steller sea lions from timber harvest-related activities can include direct or acoustic disturbance, or habitat degradation that adversely affects individuals or their young. These effects are generally associated with the development and use of marine access facilities (MAFs), increased marine activities, and activities that alter stream habitats that flow into marine environments. No effects to marine environment are anticipated since no MAF development or use is proposed and there will be no alteration of stream habitats with this project.

Indirect and cumulative effects can result if activities alter potential forage resources or long-term productivity. Marine activities such as boat use may disturb humpback whales and sea lions while they are feeding, resting, or traveling. The Marine Mammal Protection Act (NMFS 2004) and 50 CFR 224 establish measures to protect marine mammals. These measures include prohibiting the harassment, hunting, capturing, or killing of any marine mammal and prohibiting approaching within 100 yards of a humpback whale. The Forest Plan has specific standards and guidelines for marine mammals (USDA FS 2008a, p. 4-93).

No direct, indirect, or cumulative effects to any marine mammals are anticipated as a result of any of the proposed alternatives for this project because there will be no effects to the marine environment.

Sensitive Species and Management Indicator Species

Goshawks are the only sensitive species likely to be affected by the proposed activities associated with this project. Discussions regarding other sensitive species are found in the wildlife resource report. Goshawks are likely most affected by reductions in POG forest that alter nesting and foraging habitat and disturbances to nest sites. While no POG is proposed for harvest, this project may result in a reduction of potential young-growth nesting habitat where canopy cover is reduced. Alternative 3 reduces potential nesting habitat more than Alternative 2.

Alexander Archipelago Wolves have recently been petitioned for listing and are the only MIS species addressed in detail in this Environmental Assessment. Further discussion of other MIS species and additional species of concern can be found in the wildlife resource report.

The short length of new road could improve hunting and trapping opportunities or reduce denning opportunities but this would not be measurable. Human activity could be disruptive to individuals, and some foraging and nesting habitat could be removed or altered. The magnitude of effects would vary depending on the species, the amount of habitat altered and the season in which disturbance would occur.

This project would result in negligible to minor effects to management indicator species.

Direct and Indirect Effects

Alternative 1 – No Action

The No-action Alternative will not result in additional direct, indirect, or cumulative effects beyond the existing condition. Managed stands will continue to move slowly through succession and will provide little forage or structural diversity during the stem exclusion stage.

Alternative 2 – Proposed Action

Treatment proposed under Alternative 2 includes an approximate 4-acre skip (no harvest) corridor adjacent to the beach, along the far western portion of the stand. Outside of this no harvest area, trees would be thinned by individual-tree selection (ITS) to approximately 50 percent of the existing stand's basal area. Thinning would be lighter along the skipped corridor than within that portion of the beach fringe adjacent to where the crown thinning is proposed. Additionally, roughly 10 – 15 percent of this thinned area may be converted to small gaps, approximately 1/4 acre in size. Though thinning may increase the risk of windthrow within the stand, maintaining at least 50 percent of the current basal area, as well as leaving the western portion of the stand adjacent to the beach untreated, it is intended to provide for a reasonable assurance of windthrow.

Approximately 54 acres that occur within the TM LUD will be thinned by an ITS crown thinning, retaining 50 percent of the stand's basal area.

Direct and indirect effects of Alternative 2 would include short-term disturbance from the presence of humans in the area during project activities and noise from operating heavy equipment. An increase in road density could improve access for harvest for some species, and vegetation structure and habitat would be changed. Both action alternatives may result in temporary displacement of wildlife during project implementation.

Current deer habitat capability in WAA 1422 is about 16.5 deer/mi² (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record). This alternative would not have a measurable direct or indirect effect to the current estimated deer density.

Direct and indirect effects associated with road construction/reconstruction would include human disturbance to local wildlife during construction activities. The road would contribute to existing access for harvest of wildlife in the area by hunters, trappers, and subsistence users. However, the road is not planned to be left open to the public for motorized travel after the harvest is complete. After project implementation, road densities below 1,200 feet in elevation would remain about 1.9 mi/mi² for existing roads (not including decommissioned roads) and 2.1 mi/mi² for total roads (including decommissioned roads) in WAA 1422. The small amount of road to be added, and the fact that the road will not remain open to the public postharvest limits the direct, indirect, and cumulative effects related to road construction, so there will be no measureable effect.

Harvest of trees, particularly during the summer, may cause some local, temporary disturbance to wildlife species: this disturbance does not result in a measurable effect. Removal of overstory trees will open the canopy and bring light to the understory, which will promote the growth of understory plants such as blueberry, salmonberry, forbs, and ferns. Snow interception may be reduced if the canopy is opened, making locomotion and finding forage more difficult for wildlife during deep snow winters. While removal of

commercial trees will reduce slash loading normally associated with thinning (where everything cut is left on the ground), it is likely that slash accumulation may still present a temporary impediment to movement for some ground-dwelling species. Heavy slash loads increase the metabolic cost of locomotion, may increase vulnerability to predators, and can be particularly difficult for young deer and other animals. Snow interception may also be reduced if the canopy is opened, making locomotion and finding forage more difficult for wildlife during snowy winters.

Though thinning may increase the risk of windthrow within the stand, maintaining at least 50 percent of the current basal area, as well as leaving the western portion of the stand adjacent to the beach untreated, is intended to provide for a reasonable assurance of windthrow.

Both proposed treatments are designed to interrupt existing stem exclusion conditions and result in healthy, windfirm stands with enhanced understories; however, the VDT within the beach fringe will have greater emphasis on a windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure (USDA FS 2008a, p. 4-5, Beach and Estuary Fringe Standards and Guidelines, Beach2, II A.10).

Overall the effects will be too small to measure through habitat modeling and will not change the character of the landscape in this area.

Benefits to wildlife of this activity include increased forage production, improvement in stand structural diversity, and acceleration of stand succession toward old-growth conditions.

Goshawk

Goshawks are likely most affected by reductions in productive old-growth (POG) forest that alter nesting and foraging habitat and disturbances to nest sites.

While no POG is proposed for harvest, this alternative will result in a reduction of potential young-growth nesting habitat. The mean percentage of canopy cover in goshawk nesting areas value is about 50 percent in Southeast Alaska (Iverson et al. 1996, p. 52). The proposed thinning is estimated to result in canopy retention equal to or greater than the mean percentage canopy cover for goshawks in Southeast Alaska.

Harvest of trees, particularly during the summer, may cause some local, temporary disturbance to wildlife species: this disturbance does not result in a measurable effect.

The effects of Alternative 2 may impact individuals but are not likely to cause a trend to federal listing or a loss of viability.

Alexander Archipelago Wolf

Sitka black-tailed deer are the primary prey for wolves on POW Island. This alternative would not have a measurable direct or indirect effect to the current estimated deer density. Current deer habitat capability is estimated to be about 16.5 deer/mi² in WAA 1422 (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record).

The small amount of road to be added, and the fact that the road will not remain open to the public postharvest mitigates the direct or indirect effects related to road construction.

Alternative 2 will have no effect to wolves since it will not result in a change to the deer density or road density in WAA 1422.

Alternative 3

Alternative 3 is designed to manage the timber resource for production of sawtimber in the most economically efficient manner from suitable lands made available for timber harvest, as well as to enhance wildlife habitat within the approximate 1,000-foot-wide beach fringe. The treatment in the beach buffer is intended to interrupt existing stem exclusion conditions and result in a windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure. The following list further defines specific project components of Alternative 3:

- clearcutting of approximately 54 acres of mostly young-growth that was originally harvested in the 1940s.
- commercial thinning (variable-density thinning with skips and gaps) of approximately 16 acres within the 1,000-foot beach fringe.

Direct and indirect effects of Alternative 3 would include short-term disturbance from the presence of humans in the area during project activities and noise from operating heavy equipment. A slight increase in road density could improve access for harvest for some species, and vegetation structure and habitat would be changed. Both action alternatives may result in temporary displacement of wildlife during project implementation.

The main difference between Alternatives 2 and 3 is the proposed prescription in the stand outside of the beach buffer. Clearcut harvest on 54 acres outside of the beach buffer would return that part of the stand to stand initiation conditions. Snow interception in that portion of the stand would be eliminated, reducing the stand's value to wildlife during winters of deep snow. Understory shrub and forb production would be higher, which would benefit some species during the summer and winters during periods of little or no snow.

Nesting and foraging habitat for species dependent on mature forests would be reduced in the clearcut portion of the stand. Slash loading in the clearcut portion would likely be higher, because more trees are being harvested and processed. Also, understory shrub and forb production would likely be higher, which would benefit some species during the summer and winters during periods of little or no snow.

In this alternative, acceleration toward old-growth would still be improved in the beach buffer, but return of the remainder of the stand to stand initiation conditions will restart the successional process and delay the progression of this stand toward old-growth conditions for up to a century or more. Furthermore, the structural contrast between the thinned and clearcut areas of the stand may leave the thinned areas, including the beach buffer, more exposed and susceptible to wind and possible blowdown. However, leaving a windfirm buffer of unharvested trees along the first 200 feet of the beach buffer should help alleviate this risk. Negative effects would be slightly higher for Alternative 3 than for Alternative 2 because of the removal of additional denning or nesting structure, and loss of snow interception associated with the clearcut prescription.

Current estimated deer habitat capability in WAA 1422 is about 16.5 deer/mi² (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record). This alternative would not have a measurable direct, indirect, or cumulative effect to the current estimated deer density and therefore no effect to wolves.

Adding approximately 1 mile of road in this area will not add to cumulative effects in a meaningful way at the scale of this analysis area (WAA 1422).

Overall the effects will be too small to measure through habitat modeling and will not change the character of the landscape in this area.

Goshawk

Canopy cover will be reduced to zero on the acres proposed for clearcutting; however given the scale that goshawks are usually analyzed, the effects on 54 acres would be too small to measure through habitat modeling and will not change the overall character of the landscape in this area.

Harvest of trees, particularly during the summer, may cause some local, temporary disturbance to wildlife species: this disturbance does not result in a measurable effect.

The effects of Alternative 3 may impact individuals but not likely to cause a trend to federal listing or a loss of viability.

Alexander Archipelago Wolf

This alternative would not have a measurable direct or indirect effect to the current estimated deer density. Current deer habitat capability is estimated to be about 16.5 deer/mi² in WAA 1422 (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record).

The small amount of road to be added, and the fact that the road will not remain open to the public postharvest mitigates the direct or indirect effects related to road construction.

Alternative 3 will have no effect to wolves since it does not result in a change to the deer density or road density in WAA 1422.

Cumulative Effects

Over time (year 2039), as more deer habitat enters the stem exclusion stage in the area, the estimated deer density in WAA 1422 may drop to about 15 (USDA FS, unpublished data in the Big Thorne project record).

Adding approximately 1 mile of road in this area will not add to cumulative effects in a meaningful way at the scale of this analysis area (WAA 1422). After project implementation, road densities below 1,200 feet in elevation would remain about 1.9 mi/mi² for existing roads and 2.1 mi/mi² for total roads (including decommissioned roads) in WAA 1422. Adding approximately 1 mile of road in this area will not add to cumulative effects in a meaningful way at the scale of this analysis area (WAA 1422).

Although considerable timber harvest has taken place in WAA 1422 (approximately 38 percent of the original productive old growth has been harvested), the additional proposed harvest under either action alternative does not contribute measurably to these cumulative effects. There are major road improvements underway on Forest Road 43 that passes through this WAA, but no additional road mileage will be added. There are no other forms of human disturbance in the area and no additional roads planned. Some roads will likely be decommissioned in the future as the ATM (USDA FS 2009) is implemented.

While Alternative 3 proposes even-aged management, since the stand is currently in stem exclusion this will not contribute additional stem exclusion acres over the long term.

Rather, it will provide short-term summer forage during stand initiation before re-entering the stem exclusion stage. The cumulative effect is too small to measure through habitat modeling and will not change the character of the landscape in this area. The main outcome cumulatively for wildlife is the delay of the return of a portion of this stand (54 acres) to old-growth conditions.

The risk of wind-generated blowdown must be considered when designing prescriptions under either action alternative. A sizable blowdown event in the beach buffer would likely not move the beach buffer toward desired future conditions. Though thinning may increase the risk of windthrow within the stand, maintaining at least 50 percent of the current basal area, as well as leaving the western portion of the stand adjacent to the beach untreated, is intended to provide for a reasonable assurance of windfirmness. The treatment in the beach buffer is intended to interrupt existing stem exclusion conditions and result in a windfirm beach fringe with enhanced understory, while promoting advanced seral stand structure. In general, Alternative 2 has more beneficial and less detrimental effects than Alternative 3, but for either action alternative, effects would be too small to measure through habitat modeling and will not change the character of the landscape in this area. While the cumulative effects of this activity are expected to benefit wildlife, the area treated is very small compared to the overall scale of the WAA.

For further discussion of additional species, refer to the wildlife resource report in the project record.

Goshawk

Harvest of trees, particularly during the summer, may cause some local, temporary disturbance to wildlife species: this disturbance does not result in a measurable effect.

The effects of the proposed alternatives may impact individuals but not likely to cause a trend to federal listing or a loss of viability.

Alexander Archipelago Wolf

The proposed alternatives would not have a measurable cumulative effect to the current estimated deer density. Current deer habitat capability in WAA 1422 is estimated to be about 16.5 deer/mi² (USDA FS, unpublished data (July 19, 2012 v2) located in the Big Thorne project record). The estimated deer density for the entire WAA is expected to decline to about 15 deer/mi² by the year 2039 as other previously harvested stands enter the stem exclusion phase. The small amount of road to be added, and the fact that the road will not remain open to the public postharvest mitigates the direct, indirect, and cumulative effects related to road construction, so there will be no measurable effect to wolves.

Summary

The table below (Table 5) summarizes the effects of the proposed activities to species discussed above. There will be no effect to threatened, endangered, or candidate species, and no impact to any sensitive species, except goshawks. Due to the harvest of larger young-growth trees, this project may impact individual goshawks but is not likely to cause a trend to federal listing or a loss of viability. See the wildlife resource report for information on the other species. If any previously undiscovered endangered, threatened,

candidate or sensitive species are encountered at any point in time prior to or during the implementation of this project, a District Biologist would be consulted and appropriate measures would be enacted.

ESA does not require consultation for “no effect” determinations. Therefore consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service to review the effects of this project on threatened, endangered and candidate species is not required.

Table 5: Summary of effects of the proposed activities to species that occur or are likely to occur on the Tongass National Forest or in adjacent waters.

Species/Issue	Presence		Direct, indirect and Cumulative Effects	
	Species Present in Analysis Area ¹	Species Habitat Present in Analysis Area	Level of Influence ^{2,4} Determination	Reason for Determination/ Level of Influence
Threatened and Endangered³				
Humpback Whale	Yes	Yes	§402.03(b)(3)(i) not measurable Negligible/ No Effect	There will be no effects to the marine environment.
Steller Sea Lion (western/eastern)	Yes	Yes	§402.03(b)(1) Negligible/ No Effect	There will be no effects to the marine environment. There are no known haul outs or rookeries in the area.
Sensitive				
Queen Charlotte Goshawk	Yes	Yes	Minor/ may impact individuals but not likely to cause a trend to federal listing or a loss of viability	There are no known goshawk nests in the area, nor was any evidence of goshawks found during field reconnaissance of the area during site visits in 2011 and 2012. This project may result in a reduction of potential young-growth nesting habitat where canopy cover is reduced. Alternative 3 reduces potential nesting habitat more than Alternative 2.
Management Indicator Species				
Alexander Archipelago Wolf	Yes	Yes	No effect	There are no known den sites in the area. An increase in human activity associated with timber harvest and opening of a short length of road may increase opportunities for wolf harvest to a small degree, but this would not be measurable. The proposed alternatives would not have a measurable direct, indirect, or cumulative effect to the current estimated deer density.

¹ “Yes” if the species is known or is likely to occur in the analysis area or in marine waters adjacent to the analysis area. “No” if the species has not been documented or is not likely to occur in the analysis area.

² Determinations are only required for listed and sensitive species. Determinations for threatened and endangered species include “no effect”, “not likely to adversely affect”, or “likely to adversely affect” (Bosch 2004). Determinations for candidate species include “no effects”, “not likely to jeopardize proposed species, or adversely modify proposed critical habitat”, or “likely to jeopardize proposed species, or adversely modify proposed critical habitat”. Determinations for sensitive species include “no impacts”, “beneficial impacts”, “may impact individuals but not likely to cause a trend to federal listing or a loss of viability”, or “likely to result in a trend to federal listing or a loss of viability” (Bosch 2004).

³ There will be negligible/no effect to other listed or candidate species because these species do not or rarely occur and/or key habitats are not present in or around the analysis area.

⁴ §402.03(b)(1): no effects to T&E species or to designated critical habitat; §402.03(b)(3)(i): Effects are not capable of being measured or detected in a manner that permits meaningful evaluation.

Subsistence

Subsistence hunting, fishing, trapping and gathering activities are a major focus of life for many Southeast Alaska residents. Nearly all rural Alaska communities depend on subsistence resources to meet some portion of their nutritional needs or to perpetuate cultural customs and traditions. The Forest Plan determined that the primary subsistence resource likely to be significantly affected by Forest Plan actions was Sitka black-tailed deer. Deer are considered the “indicator” for potential subsistence resource consequences concerning the abundance and distribution of the resources (USDA FS 2008b, p. 3-428) and will be the only species addressed in this analysis.

In compliance with Section 810, Title VIII of ANILCA, a federal agency having jurisdiction over public lands in Alaska must analyze the potential effects of proposed land use activities on subsistence uses and needs, and include a finding on whether the proposed action may significantly restrict subsistence uses. Subsistence analyses usually focus on three factors: 1) abundance and distribution of the resource; 2) access to the resource; and 3) competition for the resource. This EA and the wildlife resource report describe the direct, indirect and cumulative effects of the proposed action and alternatives on deer subsistence resources in the analysis area.

Affected Environment

Deer harvest in WAA 1422 is very important for subsistence hunting on POW Island. This WAA has provided the highest annual deer harvest of any WAA in Game Management Unit 2 from 2005 to 2009 (ADFG, unpublished data), with an average of 368 deer harvested annually from this WAA alone, compared to the Island-wide average of 2,324 during that same time period (ADFG, unpublished data).

Abundance and Distribution

The abundance and distribution of deer is generally based on assessing the number and location of deer available for hunter harvest. The abundance and distribution of deer on the Tongass is described in the 2008 Forest Plan (USDA FS 2008b, pp. 3-427 to 3-429). Deer habitat capability in WAA 1422 is currently estimated at 16.5 deer/mi². Despite being low, this WAA has consistently produced the highest deer harvest of any WAA on POW Island in recent years. A number of factors may have contributed to this discrepancy, including uneven hunter effort across the landscape, and more than a decade of mostly low-snow winters in recent years coincide with forage availability in young clearcuts before they enter the stem exclusion stage.

Access

Subsistence users typically hunt and fish in traditional areas surrounding their communities. Appendix H to the 1997 Forest Plan Final EIS describes traditional household deer hunting areas for the 32 communities in Southeast Alaska. Prince of Wales Island contains an extensive road system connecting the island’s communities and providing access to hunting and fishing areas and can affect subsistence both positively and negatively by providing access, dispersing hunting and fishing pressure, and creating the potential for increased competition. While road systems tend to bring more people into an area, they also give subsistence hunters access to previously remote regions and

provide a greater opportunity for subsistence harvest (USDA FS 2008b, p. 3-420). WAA 1422 is accessible by road and receives relatively moderate hunting pressure.

Competition

Subsistence resources are not distributed or used evenly across the Forest. Where resources are confined to island groups or river systems and access is costly or nonexistent, use of the resources is low. Where the resource is abundant, and a community is present but access by other communities is costly, the resource tends to be used primarily by the community that resides in the area. Where resources are abundant and access is available to local and other communities of Southeast Alaska, competition for resources may exist. Prince of Wales Island is a popular hunting area not only for POW communities but other communities as well. The nearest community, Naukati, gets about 2/3 of its deer from WAA 1422. While most hunters using this WAA are from POW communities, the WAA is also hunted by non-POW (primarily Ketchikan) hunters who arrive via ferry, boat, or floatplane (1997 Forest Plan FEIS, p. H-82). Increased competition may result when less-expensive access to the area or within the area is provided. When areas historically not used for subsistence purposes are made available because of easier, or more cost-effective access, the new area then tends to be used. When communities with road access to abundant resources are connected to the ferry systems or to commercial air services, competition for the resources may be generated from outside communities with lower abundance of the same resource.

Environmental Consequences

Direct and Indirect Effects – All Alternatives

Abundance and Distribution

The No-action Alternative will not further impact deer distribution and abundance because it will not change the trajectory of stand succession. The stand will continue to grow in stem exclusion and provide little forage for decades to come until it reaches maturity and natural canopy gaps begin to form. There is some evidence that that process is beginning to occur, but without treatment the return of old-growth conditions and forage production will be slow.

Both action alternatives will result in temporary displacement of deer during project implementation as animals will likely temporarily leave the area due to disturbance from humans and heavy machinery. Alternative 2 would provide more benefit to deer populations because it would open most of the stand to provide light to the understory, thereby increasing forage production, while not removing all of the overstory (providing some snow interception). The stand would move toward old-growth conditions sooner under this treatment, when compared to being left untreated. This alternative will not result in a measureable change to deer populations within the next several decades.

Alternative 3 would return most of the stand to stand initiation conditions. This alternative will not result in a measureable change to deer populations within the next several decades. However, the stand would return to stand initiation stage and thus delay the return to old-growth conditions in the clearcut portion of the stand.

Access

Alternative 1 will not affect access.

Under both Alternatives 2 and 3, rebuilding old and constructing new roads (approximately 1 mile) could temporarily increase access for some users in the project area. This road will be closed to motorized use when project activities are completed. This will not contribute to restriction of subsistence resources. No additional existing roads are proposed to be closed with this project.

Competition

None of the alternatives in this project are expected to affect competition between hunters for subsistence deer. The slight and temporary increase in access associated with the action alternatives may serve to temporarily distribute hunters more widely while the road is open, but this access will deteriorate once the roads are closed after project implementation.

Cumulative Effects – All Alternatives

Direct and indirect effects of this project alone are not expected to affect abundance and distribution, access to, or competition for deer as a subsistence resource, as stated above. The Forest Plan FEIS (USDA Forest Service 2008b) concluded that full implementation of the Forest Plan would cause a significant possibility of a significant restriction to subsistence deer resources as a result of cumulative effects over the course of the rotation due to reductions in habitat capability relating to large scale timber harvest, mostly related to loss of forage in stem excluded stands. Because this stand is already stem excluded, none of the alternatives in this project are expected to decrease deer abundance further because the current value of the stand to deer is very low with little forage available.

Adding approximately 1 mile of road in this area will not add to cumulative effects in a meaningful way at the scale of this analysis area (WAA 1422). After project implementation, road densities below 1,200 feet in elevation would remain about 1.9 mi/mi² for existing roads and 2.1 mi/mi² for total roads (including decommissioned roads) in WAA 1422. This road will be closed to motorized use when project activities are completed.

Conclusion and Finding

Consistent with section 810 of ANILCA, the potential effects of this project on subsistence opportunities and resources were evaluated. This project may result in temporary displacement of deer and other wildlife during project implementation due to disturbance. However, because there would be no reduction in abundance and distribution of, access to, and competition for subsistence resources, the proposed project will not result in a significant possibility of a significant restriction of subsistence resources and uses.

Timber Economics

Affected Environment

The analysis area for the effects to timber economics is Southeast Alaska. About 74,000 people live in towns, communities, and villages located on islands and coastal lands of Southeast Alaska (ADCCED 2009). The Southeast Alaska region accounts for about 12 percent of the State's population and 6 percent of the land base. Federal lands comprise about 95 percent of Southeast Alaska, 80 percent within the Tongass National Forest. Southeast Alaska communities, which are within or adjacent to the Tongass National Forest, are largely dependent on the Forest to provide natural resources for employment.

Analysis Methods

The Alaska Region Financial Analysis Spreadsheet Tool-Residual Value (“FASTR”) version March 23, 2012, was used to compare the project alternatives. The FASTR model uses the same logging costs and manufacturing costs developed for the Alaska Region timber sale appraisal program. Costs reflect production studies and data collected from timber sale purchasers in Southeast Alaska. The FASTR model runs are one tool to gauge current economics for an alternative, but it does not provide a complete picture. More information about FASTR and the method of analysis is located in the project record.

Timber volume estimates used in the Dargon Point financial analysis are based on site-specific stand examination information collected from plots within the proposed harvest areas.

Factors Affecting Timber Sale Economics

The main factors that influence the economic value of timber sales are logging systems, length of haul to the nearest manufacturing centers, road construction, and proposed timber management including quantity and quality of timber.

It is assumed for this project that trees will be cut with a feller-buncher where possible. For trees that are too big for a feller-buncher, or where the slope is too steep for equipment, trees will be felled by hand. In some cases logs will be processed in the woods. Where commercial thinning is prescribed, trees will be placed in a “herringbone” fashion to the skid trail. A shovel and forwarder could be used to swing logs to the haul road. A processor may be used to cut to length logs where damage to standing trees can be avoided.

Environmental Consequences

Direct and Indirect Effects

Both action alternatives respond to the goals and objectives identified by the Forest Plan and help move the area toward the desired conditions as described in the Plan. Each action alternative is responsive to the need to manage the timber resource for production of sawtimber and other wood products from suitable lands made available for timber harvest on an even-flow, long-term sustained yield basis, and in an economically efficient manner. By meeting this need, each alternative has the potential to support timber industry employment and benefit local and regional economies. The extent to which each

alternative meets this need is correlated directly to the total volume of timber harvest for that alternative. For timber volume to contribute to the stated purpose, it must also be economically viable.

Alternative 1 – No Action

Alternative 1 proposes no timber to be harvested and no roads to be constructed. This alternative produces no sawtimber from suitable lands made available for timber harvest on the Tongass National Forest. Sawtimber needed to meet the purpose and need would have to be harvested from other suitable lands made available for timber harvest on the Tongass National Forest.

Alternative 2 - Proposed Action

The proposed action makes approximately 1.4 MMBF of sawtimber available from the project area to meet the project's purpose and need. Additional aspects of Alternative 2 relative to timber economics include:

- commercial thinning using conventional ground-based yarding systems,
- less volume than Alternative 3,
- construction of approximately 1 mile of road,
- a lower indicated bid value (-\$30.20/MBF) than Alternative 3,
- provides less project employment opportunities (6-8 direct annualized jobs) than Alternative 3,
- provides for an additional entry or final harvest in the future of the retained crop trees within the 56-acre portion of the stand that was commercially thinned.

Current indicated bid value estimates show a negative value for Alternative 2. The higher cost associated with commercially thinning compared to clearcutting is estimated to be a difference of \$96/MBF (\$106/MBF for clearcutting and \$202/MBF for thinning).

Alternative 3

Alternative 3 is designed to improve timber harvest opportunities. This alternative better addresses timber economics by proposing a greater volume (2.5 MMBF) of sawlog material and clearcutting that lowers logging costs. Consequently, Alternative 3 has a much higher indicated bid value - four times that of Alternative 2. Aspects of Alternative 3 include:

- clearcutting and commercial thinning using conventional ground based yarding systems,
- construction of approximately 1 mile of road,
- a higher indicated bid value (+\$123.27 per MBF), than Alternative 2.
- more project employment opportunities (12 to 14 direct annualized jobs) than Alternative 2.

At this time, Alternative 3 has the greatest potential to provide wood products in an economically efficient manner.

Cumulative Effects – All Alternatives

Economic effects are analyzed in the 1997 Forest Plan FEIS, 2003 Forest Plan SEIS, and most recently in the analysis for the 2008 Forest Plan Amendment FEIS. Alternatives 2 and 3 would contribute to the timber-related economy of Southeast Alaska. Alternative 1 would not contribute to the timber-related economy and timber from other areas on the Tongass would have to be used to provide a supply. Past timber sales have contributed the development of existing roaded infrastructure which would be used for each action alternative. Presently, other timber sale projects in the vicinity include remaining sales from the Logjam EIS and the planned Naukati project.

Findings Required by Other Laws and Regulations

Many federal laws and executive orders pertain to project-specific planning and environmental analysis on federal lands. While most of the laws and executive orders listed below pertain to all federal lands, some of the laws are specific to Alaska.

Several of the laws and executive orders listed below require project-specific findings or other disclosures. These apply to federal land management projects and activities and are included here and in any future Decision Notice. They apply to all alternatives considered in this EA.

National Forest Management Act

The National Forest Management Act (NFMA) requires specific determinations to be made for this project: consistency with the Forest Plan and FSM 2410.3, R10 Supp. 2400-2002-1 (5/7/2002); a determination of clearcutting as the optimal method of harvesting, if used; and specific authorizations to create openings over 100 acres in size. Specific information and rationale used to develop the unit prescription is located in the project record.

2008 Tongass Land and Resource Management Plan (Forest Plan):

This project is consistent with the Forest Plan and all project alternatives comply with the 2008 Tongass Land and Resource Management Plan. This project incorporates all applicable Forest Plan Standards and Guidelines and management prescriptions, and complies with Forest Plan goals and objectives. The Forest Plan complies with all resource integration and management requirements of 36 CFR 219 (219.14 through 219.27). Application of Forest Plan direction for the Dargon Point Commercial Thinning project ensures compliance at the project level. Therefore, the Dargon Point Commercial Thinning Proposed Action is consistent with the Forest Plan.

Even-aged Management as the Optimal Method of Harvesting:

The Forest Plan (USDA FS 2008a, pp. 4-71 to 4-72) gives guidance on when to use even-aged management. Even-aged management will be used in this project to:

- achieve timber production objectives;
- preclude and minimize the occurrence of, and the potential adverse impacts from windthrow; and
- to provide for the establishment and growth of desired trees.

Harvest Openings over 100 Acres in Size:

There are no harvest openings over 100 acres proposed for this project. Therefore, the Dargon Point Commercial Thinning project is consistent with the Forest Plan and FSM 2410.3, R10 Supp. 2400-2002-1 and consequently complies with the National Forest Management Act.

Endangered Species Act

The project alternatives are not anticipated to have a direct, indirect, or cumulative effect on any threatened and endangered species in or outside the project area. A biological evaluation has been completed for this action which indicates that no federally listed threatened or endangered species will be affected by this activity. Consultation with the U.S. Fish and Wildlife Service is not required because no threatened and endangered terrestrial species occur in the project area. ESA does not require consultation for "no effect" determinations.

Bald and Golden Eagle Protection Act

Management activities within bald eagle habitat will be in accordance to a Memorandum of Understanding between the Forest Service and the U.S. Fish and Wildlife Service.

Tongass Timber Reform Act

The Tongass Timber Reform Act (TTRA) prohibits commercial timber harvest within 100 feet on either side of Class I streams and Class II streams that flow directly into Class I streams. TTRA also requires the use of BMPs. The Forest-wide Riparian Standards and Guidelines in the Forest Plan incorporate the requirements of TTRA.

National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on significant historic properties. The Forest Service program for compliance with the National Historic Preservation Act (NHPA) includes locating, inventorying and evaluating the National Register of Historic Places eligibility of historic and archeological sites that may be directly or indirectly affected by scheduled activities. Regulations (36 CFR 800) implementing Section 106 of the NHPA require federal agencies to consider the effects of their actions on sites that are determined eligible for inclusion in or are listed in the National Register of Historic Places ("historic properties").

A Forest Service archaeologist has reviewed this project. The final determination by Forest Service Heritage Resources is that the project will have no effect on historic properties eligible to the National Register of Historic Places.

Federal Cave Resource Protection Act

No known significant caves in the project area will be directly or indirectly affected by project activities. Forest Plan Karst and Caves Standards and Guidelines will be applied to areas known or suspected to contain karst resources. One significant resurgence feature was found along the southern portion of the unit and will be protected by a 100-foot no-harvest buffer.

ANILCA Sections 810 & 811, Subsistence Evaluation and Finding

Consistent with section 810 of ANILCA, potential effects of this project on subsistence opportunities and resources were evaluated. Because there will be no reduction in

abundance and distribution of, access to and competition for subsistence resources, the proposed project will not result in a restriction of subsistence uses of wildlife, fish, or other foods. Addition of about 1 mile of road may add to access for some subsistence users. Therefore, the Dargon Point Commercial Thinning project is consistent with ANILCA.

Clean Water Act

Congress intended the Clean Water Act of 1972 as amended in 1977 and 1987 to protect and improve the quality of water resources and maintain their beneficial uses. Section 313 and Executive Order 12088 of January 23, 1987 address federal agency compliance and consistency with water pollution control mandates. Sections 208 and 319 address nonpoint source pollution caused by activities such as timber harvest. The site-specific application of best management practices (BMPs), with a monitoring and feedback mechanism, is the approved strategy for controlling nonpoint source pollution as defined by Alaska's Nonpoint Source Pollution Control Strategy (ADEC 2007). Annual Tongass National Forest BMP monitoring results consistently report a high success rate at applying BMPs (USFS 2005-2012). In 1997, the State approved the BMPs as described in the Forest Service's Soil and Water Conservation Handbook (USDA FS 2006) as consistent with the Alaska Forest Resources and Practices Regulations. The BMPs are incorporated into the Tongass Land Management Plan.

The Forest Service recently issued National Core BMPs (USDA FS 2012). Directives for using these BMPs are currently in development. The Dargon Point project will implement the most up-to-date BMP guidance. A list of key BMPs that would be implemented as part of the Dargon Point project is included in the watershed resource report.

A discharge of dredge or fill material from normal silvicultural activities such as harvesting for the production of forest products is exempt from Section 404 permitting requirements in waters of the United States, including wetlands (404(f)(1)(A)). Forest roads qualify for this exemption only if they are constructed and maintained in accordance with BMPs to assure that flow and circulation patterns and chemical and biological characteristics of the waters are not impaired (404)(f)(1)(E)). The BMPs are specified in 33 CFR 323.4(a). These specific BMPs have been incorporated into the Forest Service's BMP 12.5 (USDA FS 2006).

Currently, there is uncertainty as to whether a National Pollutant Discharge Elimination System (NPDES) permit would be required for stormwater discharges from logging roads associated with this project. This uncertainty is due to recent, ongoing court cases, a one-year Congressional moratorium on permitting, pending legislation, and proposed EPA rulemaking. Should it be determined that a NPDES permit is required for this project, the Forest Service will comply with any applicable NPDES permitting requirements (USDA FS 2012).

Clean Air Act

Emissions anticipated from the implementation of any project alternative will be minor and of short duration and are not expected to exceed State of Alaska ambient air quality standards (18 AAC 50). Therefore, no significant impact to air quality is expected to occur from this project.

Magnuson-Stevens Fishery Conservation and Management Act

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires consultation with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect essential fish habitat, defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Essential fish habitat (EFH) includes streams, rivers, lakes, ponds, wetlands and other bodies of water currently and historically accessible to anadromous fish, as well as estuarine, intertidal, and marine waters.

The Forest Service determined that the Dargon Point project "may affect essential fish habitat, but effects would be minor and localized and would not degrade fish habitat."

Formal consultation with NMFS will start when NMFS receives a copy of the EA with the EFH assessment, per agreement, and the Forest Service will continue the consultation process.

Executive Order 11988 (Floodplains)

Executive Order 11988 directs agencies to avoid construction in and modification of floodplains. Although this act deals largely with avoiding flood damage and hazards, it also directs agencies to restore and preserve the natural and beneficial values of floodplains while planning for land use. There are no floodplains affected by the Dargon Point project.

Executive Order 11990 (Wetlands)

Executive Order 11990 directs agencies to avoid to the extent feasible the destruction or modification of wetlands where there is a practicable alternative. It also directs agencies to preserve and enhance natural and beneficial values of wetlands in conducting land use planning. There are no wetlands affected by the Dargon Point project (Saari 2012).

Executive Order 12898 (Environmental Justice)

Executive Order 12898 directs federal agencies to identify and address the issue of environmental justice, i.e., adverse human health and environmental effects of agency programs that disproportionately impact minority and low-income populations.

Implementation of any of the project alternatives is not anticipated to cause any adverse human health or environmental effects; therefore, implementation of any of the project alternatives is not anticipated to cause disproportionate adverse human health or environmental effects to minority or low-income populations. Expected effects are similar for all populations, regardless of nationality, gender, race, or income.

Executive Order 12962 (Aquatic Systems and Recreational Fisheries)

Executive Order 12962 directs federal agencies to conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities nationwide.

With the application of Forest Plan Standards and Guidelines, including those for riparian areas, no significant adverse effects to freshwater or marine resources will occur. Best management practices will be implemented to provide assurance of water quality and aquatic habitat protection for all freshwater streams affected by the project. There will be no effects to recreational fishing opportunities.

Executive Order 13007 (Indian Sacred Sites)

Executive Order 13007 directs federal agencies to (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites. Based on consultations with the appropriate Indian tribes (EA, pp. 10-11), this project will not affect the integrity of any sacred sites or limit access to any sacred sites.

Executive Order 13112 (Invasive Species)

This order addresses a broader group of not only plants, but other taxa as well. An invasive species is one whose introduction does or is likely to cause economic or environmental harm or harm to human health. Specifically, EO 13112 directs all federal agencies to address the impacts their actions may have on invasive species. This project may have a moderate risk of introducing and spreading invasive plant species in the harvest unit or road corridor; however, with mitigation measures such as equipment cleaning, increased risk would be reduced to low, or minor.

Required Permits

Permits will be obtained from federal and state agencies as needed. No permits have been identified, as required, for project activities at this time.

List of Preparers

Following is a list of the IDT members who participated in completing this environmental analysis.

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Sandy Powers, Forest Writer-editor

Marina Whitacre, Writer-editor

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Appendix A – Maps

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Figure 1. Dargon Point Vicinity Map

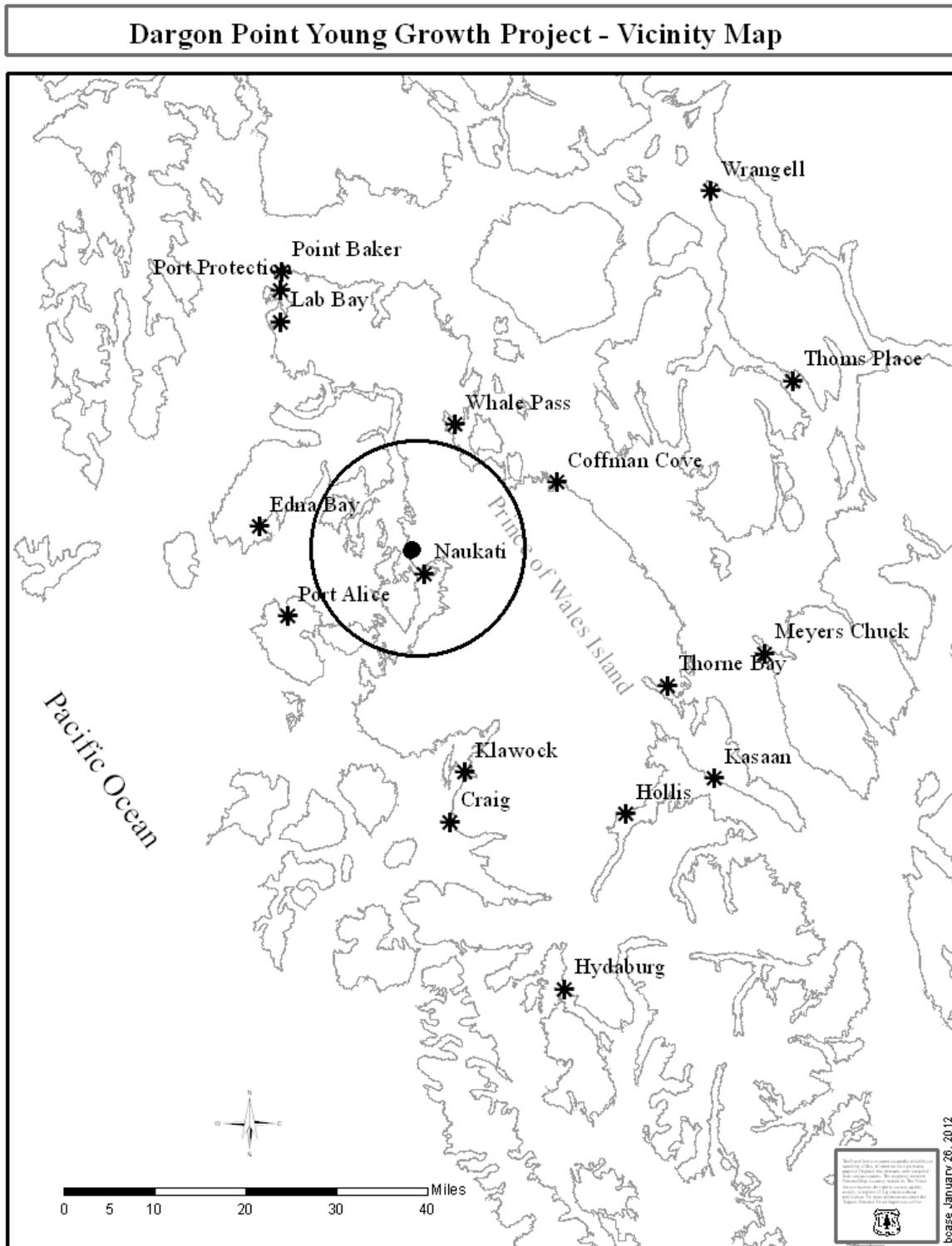
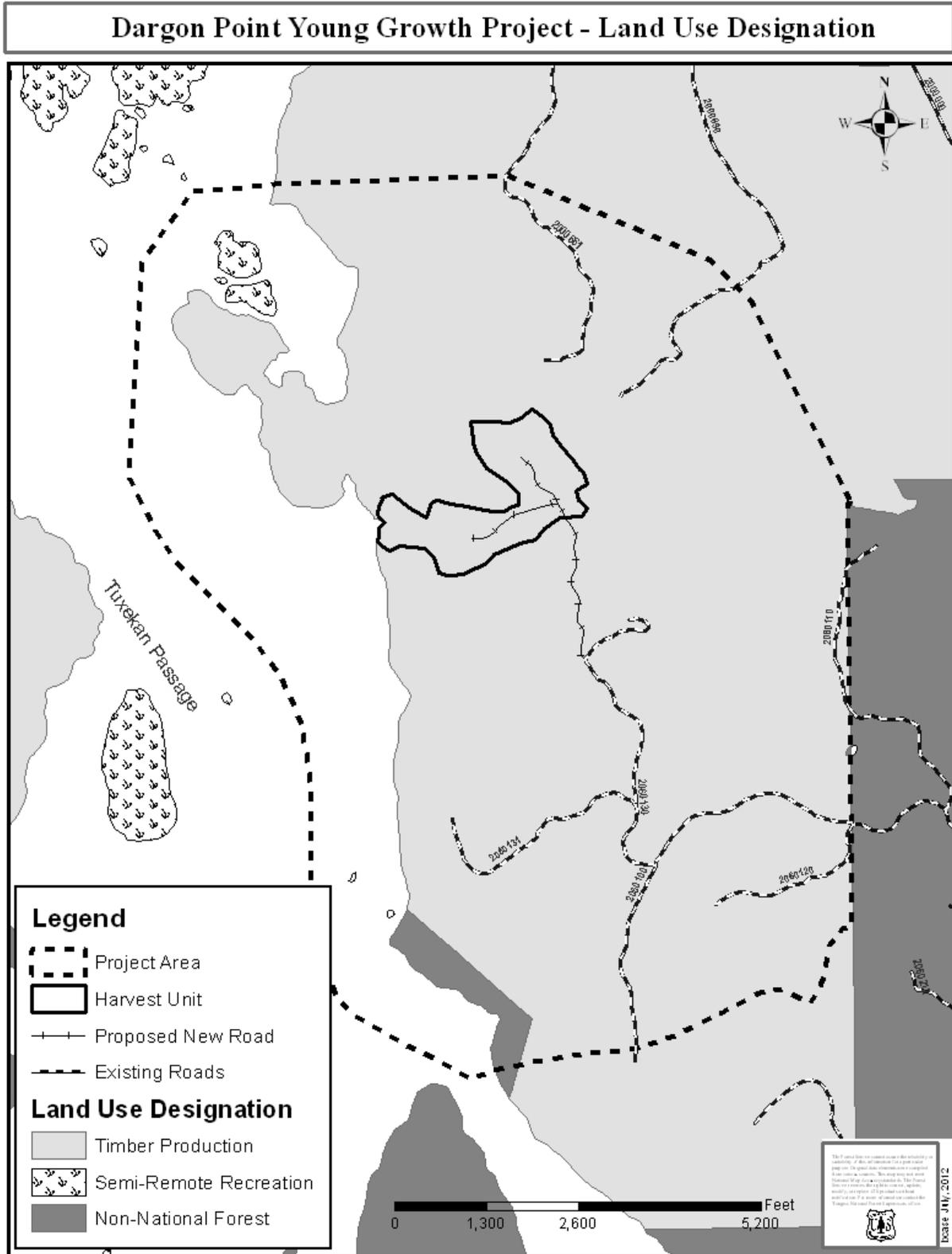
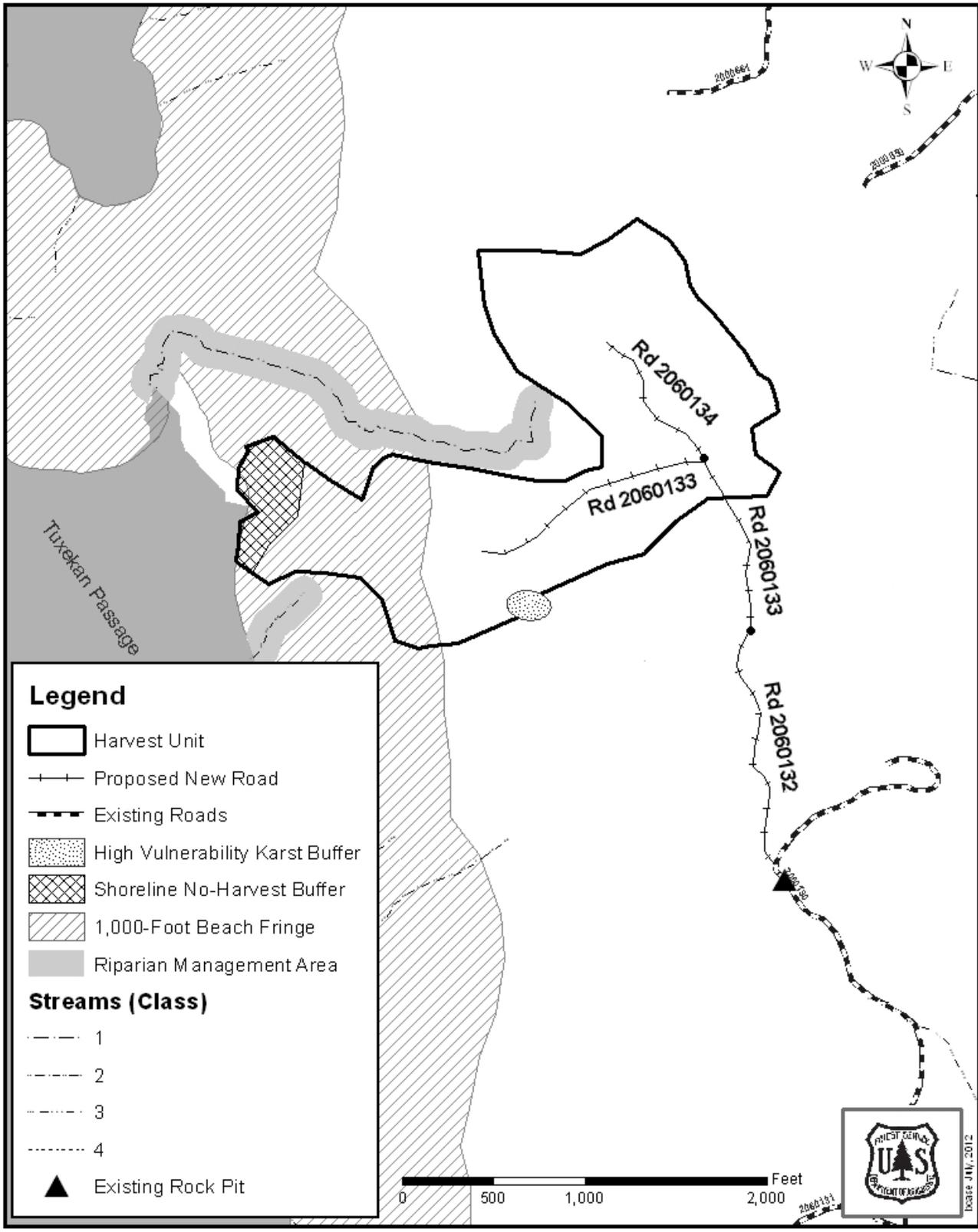


Figure 2. LUD map.



Appendix B – Unit and Road Cards

Dargon Point Young Growth Project - Unit Card



Legend

- Harvest Unit
- Proposed New Road
- Existing Roads
- High Vulnerability Karst Buffer
- Shoreline No-Harvest Buffer
- 1,000-Foot Beach Fringe
- Riparian Management Area

Streams (Class)

- 1
- 2
- 3
- 4
- Existing Rock Pit



Unit Data Card

LUD: TM	Logging Systems: Shovel	Total Unit Acres: 70	Net Harvest Alt 2: 1.4 Volume MMBF: Alt 3: 2.5
<p>SILVICULTURE:</p> <p><u>Existing Stand Condition/Vegetation:</u> The unit is a 70 year old even-aged young-growth stand of spruce and hemlock. Western redcedar does occur within the unit but to a minor extent. Species composition is estimated to be 86% Sitka spruce, 14% western hemlock and <1% redcedar. Currently, a majority of the stand is in the stem exclusion stage. Average stem height-to-diameter ratios over most of the stand are within the range suitable for intermediate treatment; however, portions of the stand consists of taller, more spindly trees making these areas unstable if predisposed through thinning to wind, snow and ice damage. Pockets of windthrow are present in the southern portion of the stand. Minor tree species, if present, consist of the occasional western redcedar. Snags and downed trees are comprised of mostly intermediate and smaller sized material from trees that have succumbed to suppression mortality; however small groups of larger trees of the dominant and codominant crown have blown over within the stand. Windthrow risk high. Mistletoe occurrence is low, but is present in old growth trees outside of the unit where old growth exists. The understory condition relative to deer browse was noted by the IDT as higher than expected for a stand in stem exclusion stage. Understory plants include mostly ferns, however vaccinium, fernleaf goldthread, and threeleaf foamflower are common and vary significantly throughout. Bunchberry dogwood is lacking overall.</p> <p><u>Silvicultural Prescription:</u> Alt 2: Even-aged management - Intermediate treatment: crown thinning by individual tree selection, retaining 50% of the stand's basal area for the 54 acres in the TM LUD. The remaining 16 acres in the beach fringe would be variable-density thinning by individual tree selection, retaining 50% of the stand's basal area, with a 4-acre skip and ¼-acre gaps. Thinning intensity should be lighter along the skipped corridor than within that portion of the beach fringe adjacent to the clearcut. The resulting stand within the beach fringe would be two-aged tending to uneven-aged.</p> <p>Alt 3: Even-aged management - clearcut with natural regeneration for the 54 acres in the TM LUD. [Clearcutting is prescribed to preclude or minimize the occurrence of mistletoe, windthrow, or logging system damage, increase the regeneration of desirable species and remove decayed trees.] The remaining 16 acres in the beach fringe would be variable-density thinning by individual tree selection, retaining 50% of the stand's basal area, with a 4-acre skip and ¼-acre gaps. Thinning intensity should be lighter along the skipped corridor than within that portion of the beach fringe adjacent to the clearcut. The resulting stand within the beach fringe would be two-aged tending to uneven-aged.</p>			
<p>TIMBER/LOGGING: Shovel yarding to proposed road. This unit is designed for partial suspension using a shovel in conjunction with a feller-buncher where possible, and conventional felling where the feller-buncher cannot be used.</p>			
<p>ENGINEERING/ROADS: Refer to road cards for Routes 2060132, 2060133, 2060134, in this section.</p>			
<p>GEOLOGY/KARST: A 100-foot buffer is required around a high-vulnerability karst feature that is located along the southern boundary of the unit. Karst features within the proposed unit would be protected by designating them with stream protection flagging to minimize adjacent ground disturbance, control equipment crossings, and require logging debris removal.</p>			
<p>Fisheries: One Class I stream is located along the north western boundary of the unit. Required no-harvest buffer is 130 ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. One Class II stream located along the south western boundary of the unit. Required no-harvest buffer is 100 ft. or to the top of the side-slope break; whichever is greater. There is blowdown present along the streams and an IDT review for RAW zone will be required.</p>			
<p>Soils: Avoid the limestone rock outcrop and cliff on the southern boundary of the unit. The trees on the toeslope may be directionally felled to the shovel. Use care when operating on slopes greater than 25%.. Generally avoid shovel use on slopes over 35% gradient. Use slash to support equipment, especially on multi-pass skid trails. If mineral soils are exposed on skid trails, slash and if necessary use waterbars to prevent erosion (R10 BMP 12.17 and National BMPs Veg-2 and Veg-4). The puncheon trails should be scattered upon completion of yarding activities. If necessary, a soil scientist could visit pre, during, and post harvest.</p>			

Wildlife: Provide for leave strips, slash treatments, directional felling, or other mechanisms where possible to promote connectivity between stands and reduce immobility associated with high slash loads. Windfirmness in the beach buffer is emphasized, as well as promotion of old growth structure including accelerating growth of large, windfirm trees. Gaps in the beach fringe should be situated where the best understory recruitment of forage species is likely and avoid the largest young-growth or residual trees.

Heritage: Full avoidance of known cultural resources is required. All known cultural resources will be flagged and removed from the harvest unit and approved by a heritage specialist prior to implementation.

Invasive Plant Species: In the event that sediment control is necessary, use of silt fence or coconut fiber matting is recommended instead of straw bales (since straw bales have been known to introduce invasive species). If reseeded is required, utilized contract specifications that specify weed free material, and that the seed contain no more than 0.01% other seed, whether identified or not. Native seed may or may not be available, check with the POW Ecologist otherwise, typical weed-free mixes tend to include: 40% Annual ryegrass, 40% boreal red fescue, 20% Arctared fescue.

No resource concerns were identified for Recreation and Scenery.

Road Management Objectives

Project Dargon Point		System Prince of Wales	Land Use Designation TM
Route No. 2060132	Route Name	Begin Terminus MP 0.69 Road 2060130	End Terminus MP 0.26
Begin MP 0.00	Length 0.26	Status Proposed	Managing Organization 100554

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	1	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00		2	1	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status. Storage category "A" assigned.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self-maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

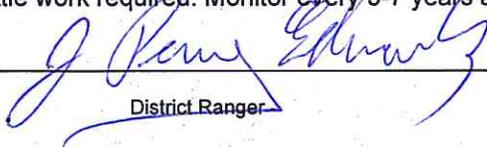
Accept: Non-motorized use after road storage

Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be assigned maintenance level 1 and motor vehicle use will be eliminated. Storage category "A" to be implemented at storage. Road is stable, with very little or no resources affected. Road will have minimal closure devices, typically have drivable waterbars, rolling dips, and nearly all existing drainage structures are retained. Roads can be opened by permit, contract or for administrative use with very little work required. Monitor every 5-7 years and adjust maintenance as needed.

Approved


District Ranger

11/5/12

Date

Road Management Objectives Site Specific Design Criteria Road 2060132

ROAD LOCATION: Route utilizes decommissioned road bed. Gentle grades with adverse to 8%. No streams along road.

WETLANDS: Road avoids wetlands (R10 BMP 12.5).

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (R10 BMP 14.5 and National BMPs Road-3 and Veg-2). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17, 14.8, 14.11, 14.12 and National BMP Road-3). After timber harvest, road storage will implement measures to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces without frequent maintenance (R10 BMP 14.20).

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (R10 BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (R10 BMP 14.7 and National BMP Min-5). Potential rock source located at milepost 0.65 on road 2060130.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: no concern

WILDLIFE: no concern

BOTANY: no concern

INVASIVE SPECIES: no concern

VISUAL/RECREATION: no concern

CULTURAL: no concern

LANDS/MINERALS/GEOLOGY/KARST: Road avoids high vulnerability karst features (R10 BMP 14.2). Road sidecast, construction slash and excess excavation will not be placed near karst features (R10 BMPs 14.10, 14.12 and 14.19),

SOILS/WATER: The proposed route traverses gentle slopes. Apply R10 BMPs 14.2 and 14.7 and National BMPs Min-5 and Road-2). All exposed areas of mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17 and 14.8 and National BMPs Road-3, Road-6, and Veg-2). Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (R10 BMPs 14.8 and 14.22 and National BMPs Road-1 and Road-3).

FISHERIES: no concern

Road Management Objectives

Project Dargon Point		System Prince of Wales		Land Use Designation TM	
Route No. 2060133	Route Name		Begin Terminus MP 0.26 Road 2060132		End Terminus MP 0.48
Begin MP 0.00	Length 0.48	Status Proposed	Managing Organization 100554		

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00		2	1	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status. Storage category "A" assigned.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self-maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

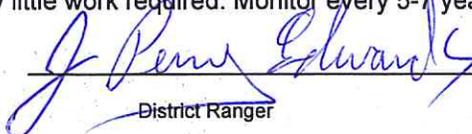
Accept: Non-motorized use after road storage

Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be assigned maintenance level 1 and motor vehicle use will be eliminated. Storage category "A" to be implemented at storage. Road is stable, with very little or no resources affected. Road will have minimal closure devices, typically have drivable waterbars, rolling dips, and nearly all existing drainage structures are retained. Roads can be opened by permit, contract or for administrative use with very little work required. Monitor every 5-7 years and adjust maintenance as needed.

Approved


District Ranger

11/5/12

Date

Road Management Objectives Site Specific Design Criteria Road 2060133

ROAD LOCATION: Road traverses gentle terrain with no streams crossed. Route runs slightly adverse, maximum adverse to 12%. Several hundred feet of side slopes to 45% are traversed prior to entering unit. On the remainder of the route side slopes are less than 25%. Road located to provide access for ground based logging system and maximize efficient yarding distance. During construction follow R10 BMPs 14.6, 14.7, 14.12, 14.19 and National BMPs Road-2, Road-3, Road-7 and Min-5.

WETLANDS: Road avoids wetlands (R10 BMP 12.5).

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (R10 BMP 14.5 and National BMPs Road-3 and Veg-2). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17, 14.8, 14.11, 14.12 and National BMP Road-3). After timber harvest, road storage will implement measures to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces without frequent maintenance (R10 BMP 14.20).

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (R10 BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (R10 BMP 14.7 and National BMP Min-5). Potential rock source located at milepost 0.65 on road 2060130.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: no concern

WILDLIFE: no concern

BOTANY: no concern

INVASIVE SPECIES: no concern

VISUAL/RECREATION: no concern

CULTURAL: no concern

LANDS/MINERALS/GEOLOGY/KARST: Road avoids high vulnerability karst features (R10 BMP 14.2). Road sidescast, construction slash and excess excavation will not be placed near karst features (R10 BMPs 14.10, 14.12 and 14.19).

SOILS/WATER: The proposed route traverses gentle slopes. Apply R10 BMPs 14.2 and 14.7 and National BMPs Min-5 and Road-2). All exposed areas of mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17 and 14.8 and National BMPs Road-3, Road-6, and Veg-2). Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (R10 BMPs 14.8 and 14.22 and National BMPs Road-1 and Road-3).

FISHERIES: no concern

Road Management Objectives

Project		System	Land Use Designation
Dargon Point		Prince of Wales	TM
Route No.	Route Name	Begin Terminus	End Terminus
2060134		MP 0.21 Road 2060133	MP 0.13
Begin MP	Length	Status	Managing Organization
0.00	0.13	Proposed	100554

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00		2	1	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status. Storage category "A" assigned.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self-maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

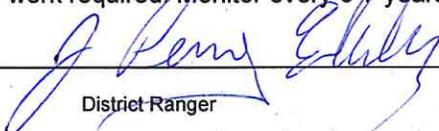
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Approved


 District Ranger

11/5/12

Date

Road Management Objectives

Site Specific Design Criteria

Road 2060134

ROAD LOCATION: Road traverses gentle terrain with no streams crossed. Route runs slightly adverse to 8% along gently rolling ground. Sideslopes are less than 20%. Road located to provide access for ground based logging system and maximize efficient yarding distance. Road entirely within harvest unit. During construction follow R10 BMPs 14.6, 14.7, 14.12, 14.19 and National BMPs Road-2, Road-3, Road-7 and Min-5.

WETLANDS: Road avoids wetlands (R10 BMP 12.5).

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (R10 BMP 14.5 and National BMPs Road 3 and Veg-2). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17, 14.8, 14.11, 14.12 and National BMP Road-3). After timber harvest, road storage will implement measures to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces without frequent maintenance (R10 BMP 14.20).

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (R10 BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (R10 BMP 14.7 and National BMP Min-5). Potential rock source located at milepost 0.65 on road 2060130.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: no concern

WILDLIFE: no concern

BOTANY: no concern

INVASIVE SPECIES: no concern

VISUAL/RECREATION: no concern

CULTURAL: no concern

LANDS/MINERALS/GEOLOGY/KARST: Road avoids high vulnerability karst features (R10 BMP 14.2). Road sidcast, construction slash and excess excavation will not be placed near karst features (R10 BMPs 14.10, 14.12 and 14.19).

SOILS/WATER: The proposed route traverses gentle slopes. Apply R10 BMPs 14.2 and 14.7 and National BMPs Min-5 and Road-2). All exposed areas of mineral soil exposed during construction shall be grass seeded and fertilized (R10 BMPs 12.17 and 14.8 and National BMPs Road-3, Road-6, and Veg-2). Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (R10 BMPs 14.8 and 14.22 and National BMPs Road-1 and Road-3).

FISHERIES: no concern



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