Alaska Rainforest Defenders

A regional environmental organization established in 2011 (formerly GSACC)

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October 13, 2020

Thorne Bay Ranger District
Attn: Twin Mountain II Timber Sale
P.O. Box 19001
Thorne Bay, AK 99919
Submitted electronically at: https://cara.ecosystem-management.org/Public/CommentInput?Project=58626

Re: Scoping Comments – Twin Mountain II Timber Sale Project

Ms. Brigham:

On the following pages are timely comments of Alaska Rainforest Defenders ("Defenders") regarding the Twin Mountain II Timber Sale Project on Prince of Wales Island. This project would extract roughly 42 million board feet (MMBF) of timber from roughly 3,000 acres of old-growth forest in the Staney Creek and Red Bay areas within the Thorne Bay Ranger District. We request that you cease planning on this project. Prince of Wales Island is the largest island in southeast Alaska and the 3rd largest island in the United States, and its remaining public forests are essential to a 21st century southeast Alaska market-based economy that relies on fish, wildlife, scenery and outdoor recreation. The Forest Service's proposed action reflects an archaic economic model and undermines the regional economy by liquidating remaining old-growth habitat.

Defenders' members use the Tongass National Forest, including the project area for recreation, commercial fisheries, subsistence, wildlife viewing, scientific research and other activities. In particular, our board members have engaged in considerable advocacy on behalf of iconic Prince of Wales Island wildlife species, such as the Alexander Archipelago Wolf, Queen Charlotte Goshawk and Sitka black-tailed deer and have a long history of participation in and dependence on southeast Alaska's commercial salmon fisheries.

We are providing the numbered exhibits on a thumb drive, which will being mailed with a postmark on or before the October 14 deadline specified in the Federal Register notice.

Sincerely,

Rebecca Knight

Rebecca Knight
president

Contents

I. Introduction

The Forest Service should cease planning timber sales on Prince of Wales Island, particularly in light of the damaged ecological condition of the island and pending and extensive timber extraction activities on non-federal land. Changed landownership patterns have made large amounts of old-growth timber available for the Chinese export markets utilized by the large timber sale purchasers through other timber bureaucracies such as the Alaska Mental Health Trust's Trust Land Office, the University of Alaska, and Sealaska Corporation. The concept of the proposed project amounts to mismanagement of remaining, vital public old-growth forest stands on Prince of Wales Island, treating it as a subsidized timber colony, in order to provide high value cedar and spruce to a favored timber operator which in large part will export unprocessed logs to Asia (primarily China).

Prince of Wales Island is a primary producer of deer in southern Southeast Alaska, supporting harvest by island residents and residents of other southeast Alaska communities. The Forest Service authorized Viking Lumber to destroy much of the best remaining publicly owned winter deer habitat in the central portion of the island through the recent Big Thorne and Logjam projects. Subsequent deer seasons were less productive for local hunters. The proposed action is almost certain to cause local or even island-wide wildlife extirpations and force survivors into isolated patches of lower quality habitat.

There have been recent and major declines in pink salmon harvests in Alaska Department of Fish and Game (ADF&G) regulatory districts adjacent to Prince of Wales Island, including historically low returns in 2020. These declines make it essential for the Forest Service to consider whether the need to preserve aquatic habitat for fishery resources should trump the agency's perceived need to supply the take of Tongass timber by Viking Lumber and Alcan Forest Products, given the massive public cost of the federal timber program. The Forest Service and other timber agencies have logged watersheds in the 1.5 million acre North Central Prince of Wales Island biogeographic province so intensively that only 15% of the island's watersheds consist primarily of intact habitat.[1]

North Prince of Wales Island ecosystems historically provided the largest amount of natural capital in Southeast Alaska, including key capital assets such as 22.3 percent of the large-tree forest, nearly 15 percent of the salmon habitat and nearly 20 percent of the deer habitat.[2] Past logging and timber road construction has substantially diminished these capital assets. Island-wide, the Forest Service and other landowners have degraded over a third of the salmon habitat, 38 percent of the deer habitat, 40 percent of the large tree forest, and over half of the black bear habitat.[3] Even more alarming is that this project targets timber in the most degraded parts of the island, where less than half or even a third of the pre-industrial habitat remains, and road densities exceed 1.5 miles per square miles. These habitat losses vastly exceed established thresholds for fish, deer, wolves, bears and other species. The Forest Service should cease planning on this project.

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[1] Forest Service. 2016. Tongass Land and Resource Management Plan FEIS at 3-197. R10-MB-769e.

[2] **Exh. 68** Schoen et al 2007b

[3] *Id.*

II. NEPA 101: The Forest Service should consider a revised purpose and need for the project area and develop a broad range of alternatives

A. The project's Purpose and Need statement arbitrarily targets timber supply and disregards other desired conditions and socio-economic changes

1. The purpose and need statement ignores non-timber desired conditions

The purpose of the project is to "move the project area toward desired conditions" and specifically "to manage the timber resource for production of sawtimber and other wood products and to meet multiple resource objectives."[4] The purpose statement selects one desired condition over multiple other desired conditions that are of greater value to all southeast Alaska residents. The stated purpose provides an overly narrow focus on providing timber, which can only be for either of two private entities – Viking Lumber Company or Alcan Forest Products; the agency has a narrow market for it timber. An agency "cannot define its objectives in unreasonably narrow terms."[5] Congress enacted NFMA in part to respond to "widespread public distress and scientific concern over the Forest Service's post-World War II shift to massive, heavily subsidized timber production in the National Forests."[6] The goal was to ensure that timber production would not be the "sole objective" of the Forest Service and to direct forest managers to protect other resources such as fish and wildlife habitats.[7]

There are multiple "desired conditions" that range from sustaining ecosystem diversity and sustainability, viable populations of multiple species, maintenance of fish and wildlife habitat, recreation opportunities, opportunities for hunting, trapping and wildlife viewing, perpetual availability or "relatively abundant" and "[w]orld-class wildlife resources" for human use and enjoyment, "good to excellent" aquatic habitat where fish "thrive" and "provide world-class fisheries" and outstanding scenery and subsistence opportunities.[8] The DEIS needs to re-evaluate socio-economic data and consider whether the federal government can better meet socio-economic needs on the island by preserving the project area and its capital assets for purposes of meeting these other "desired conditions." The DEIS should also evaluate the extent to which this project will prevent the attainment or even engender the loss of other "desired conditions." Past, present and future intensive clearcutting of old-growth forests poses unjustifiable risks to Region 10 sensitive species, subsistence wildlife species such as deer, apex predators, salmon and unique, endemic wildlife species.

2. The DEIS will need to confront whether large old-growth timber sales are economically efficient and address local needs

The stated need is "to provide a sustainable level of forest products to contribute to the economic sustainability of the region."[9] The agency believes that "[p]roviding old-growth timber would preserve a viable timber industry by providing volume in an economically

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[4] 85 Fed. Reg. 178 at 56,576 (September 14, 2020).

[5] *City of Carmel-by-the-Sea v. U.S. Dep't of Transportation,* 123 F.3d 1142, 1155 (9th Cir. 1997).

[6] *Sierra Club v. Peterson,* 185 F.3d 349, 353-54 (5th Cir. 1999)(*superseded* on other grounds, 228 F.3d 559 (5th Cir. 2000).

[7] S. Rep. 94-893, *reprinted in* 1976 U.S.C.C.A.N. 6662, 6671.

[8] 2016 Tongass National Forest Land and Resource Management Plan at 2-1.

[9] *Id.* 85 Fed. Reg. 178 at 56,576 (September 14, 2020).

efficient manner while providing jobs and opportunities for Southeast Alaska residents." [10] The Forest Plan "desired conditions" related to the purpose for this project is to continue timber uses by the "timber industry and Alaska residents" and provide volume to "local mills" and "[m]anage the timber resource … in an economically efficient manner."[11]

NEPA requires federal agencies to disclose sufficient information as needed to ensure "informed decisionmaking and informed public participation."[12] NEPA requires that federal agencies (1) take a hard look at the environmental impacts of proposed projects and (2) ensure the availability of information to the public so as to enable public participation in the decisionmaking process.[13] In particular, NEPA analyses cannot serve this second essential function if they reflect misleading economic assumptions "by skewing the public's evaluation of a project."[14] NEPA thus requires that "[a]gencies shall insure the professional integrity … of the discussions and analyses."[15]

The Forest Service fantasizes that clearcutting up to forty-two million board feet will provide socio-economic benefits. This fantasy does not reflect the small number of actual Alaskans active in federal forest liquidation – or worse, the number of seafood products and visitor products providers who will suffer harm from further ecological degradation on the island. The DEIS needs to seek out actual data on the small number of workers in federal timber and re-evaluate whether these old-growth timber sales contribute to the economic sustainability of the region or provide jobs and opportunities for southeast Alaska residents.

a. The DEIS needs to evaluate whether large old-growth timber sales meet the need to contribute to regional economic sustainability

The Forest Service's myopic focus on supplying timber for Viking at a massive public cost fails to recognize the market-based transition away from federal timber dependency and toward a more diversified and sustainable economy. The DEIS needs to evaluate whether additional clearcuts would harm island communities and whether an alternative economic model would yield a better return from the massive public expenditures on Prince of Wales Island federal land management activities made by local and national taxpayers.

Regionwide, the timber industry has no role in nearly all southeast Alaska communities and the habitat damage it causes reduces economic outputs from their primary business sectors. Only two of the 24 smaller rural communities have any timber activity at all, while the rest depend primarily on fishing and tourism.[16] The amended Forest Plan FEIS addresses the needs of those two communities (both on Prince of Wales Island) separately, with an old-growth set-aside for the cottage industry.[17] Larger communities such as Petersburg, Wrangell and Ketchikan have fully transitioned toward economies based on

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[10] *Id.*

[11] 2016 Tongass National Forest Land and Resource Management Plan at 2-5.

[12] 40 C.F.R. § 1502.1

[13] *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332. 349 (1989)

[14] *Hughes River Watershed Conservancy v. Glickman,* 81 F.3d, 437, 446 (4th Cir. 1996).

[15] 40 C.F.R. § 1502.24.

[16] 2016 LRMP FEIS at 3-547-3-689.

[17] *Id.* at 3-152.

tourism and fishing,[18] while only Klawock has notable timber industry activity because of the presence of the Viking mill and a log export facility.[19]

The planning record for the 2016 LRMP Amendment showed a broad decline in the U.S. share of the global timber economy, particularly for southeast Alaska timber.[20] The timber industry in southeast Alaska has become very small during the 21st century. There have been no new sawmills established since 2000 and the overall number of sawmills declined by more than half, to nine active operations since 2000.[21] Eight of those nine sawmills essentially comprise a very small cottage industry and process roughly 1.5 MMBF in any given year.[22] The ninth, Viking Lumber, processes the bulk of the federal timber that gets milled, but over a third of Viking's processing is marginal, into cants.[23] It employs a mere 37 mill workers.[24] Forest Service reports show that sawmill employment has consistently declined after the agency's 2007 transition to its raw log export model.[25] Even with increased flexibility to export raw logs, annual federal timber sale purchases decline each year.[26]

Since the 1990s, market factors have caused combined timber employment (supported by federal and non-federal forestlands in Southeast Alaska) to decrease by nearly 90%.[27] Timber worker earnings are less than 1% of total employment related earnings in the region; federal timber generated a fraction of a percent (0.2%) of regional employment in 2013 and workers are leaving the timber economy every year.[28] Workers from areas other than southeast Alaska comprise a significant proportion of this natural resource-based work force.[29] Forest Service employees from Prince of Wales Island know that most of Viking Lumber's workers are from Washington state, and that the Forest Supervisor's office engages in "creative writing" in its attempts to describe a local workforce.[30]

Prince of Wales Island community employment profiles identify only one community that has enough logging related employment worth quantifying.[31] The small number of logging jobs in other communities, if any, requires aggregation with other natural resource

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[18] *Id.* at 3-613, 3-639, 3-684-685.

[19] *Id.* at 3-558, 3-617.

[20] *See* 2016 LRMP FEIS PR Folder 763_02_000084 (Niemi 2016, Socioeconomic Comments on Timber Demand at 12.

[21] **Exh. 76** (Parrent & Grewe 2017).

[22] *Id.*

[23] *Id.*

[24] **Exhs. 73, 74, 75**.

[25] **Exh. 76** (Parrent & Grewe 2017).

[26] https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml

[27] *See* **Exh. 75**, p.13 (Southeast Conference publications prepared by Rain Coast Data).

[28] 2016 LRMP FEIS at 3-480, Table 3.22-2 (53,145 total jobs); *id.* at 3-485, Table 3.22-4 (federal timber provided 123 jobs)

[29] *Id.* at 3-483.

[30] **Exh. 97** (Kelly 2018).

[31] Prince of Wales Landscape Level Analysis Project PR 833_0493.

employment, such as fishing and hunting.[32] There is no existing logging company in nearby Ketchikan, requiring timber sale purchasers to import workers from elsewhere.[33] Further, there appears to be only a minuscule workforce interested in or available for the 20th century kind of timber industry jobs the Forest Service envisions as the future for the region. The Southeast Conference reports a "graying" of the regional timber workforce, stating that the "workforce is aging/in decline while the new workforce does not have the same work ethic or interest in physical work."[34] Also "[l]ogging has become a socially unacceptably business to be in."[35]

In sum, the NEPA analysis needs to confront significant economic issues and changing workforce needs in order to assess whether a purpose and need aimed primarily at providing a timber supply Viking Lumber, its de facto parent corporation in southwest Washington, and Chinese mills would meet the stated local employment and economic viability need.

b. The DEIS must discuss actual socioeconomic changes in the region

As the pulp mill era ended, the Prince of Wales Island communities worked to redefine the local economy and began looking toward other economic sectors for employment.[36] Economic planners recognized that the federal timber sale program "was heavily influenced by corporate and governmental policies and decisions that were external and largely indifferent to the community."[37] The communities began to pursue a market-based transition that would "support small locally based businesses and their existence, with hiking, hunting, fishing lodges, small gift shop and small seasonal café for tourists."[38] This effort identified the decline of the timber industry as an opportunity to shift into the maritime economy and visitor products industry in order to "provide the basis for the long-term viability of each community."[39] The island's road system which connects most of the island's towns and villages is a major competitive advantage relative to other southeast Alaska communities in terms of attracting visitors for recreational opportunities around the island.[40]

This market-based effort reflected broader regional economic trends showing that commercial fishing, the visitor industry and the maritime sector are the "bright points in our economy."[41] These sectors have contributed to an overall regional growth in employment, population and wages following a market-based recovery from past dependence on the timber industry.[42] Employment, total income, per capita income and per-capita business earnings have increased in the region since 2000.[43] Prince of Wales Island's population too has

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[32] *Id.* at 833-0488-0498.

[33] **Exh. 15** (Nichols 2017).

[34] *See e.g.* **Exhs. 73, 74, 75** (Southeast Conference publications prepared by Rain Coast Data).

[35] *Id.*

[36] Prince of Wales Landscape Level Analysis PR Document# 833_0588 (Alaska Economic Trends 2012).

[37] *Id.;* 833_0503 at 1 (City of Coffman Cove Economic Recovery Action Plan 2002).

[38] *Id.* (833_0588)*;* 833_0597 (Whale Pass Economic Recovery Plan and Action Plan 1997).

[39] *Id.;* 833_0503 at 1-2 (City of Coffman Cove Economic Recovery Action Plan 2002).

[40] *Id.;* 833_0586 at 7 (Alaska Economic Trends 1996); PR 833_00587 at 6 (Alaska Economic Trends 2001).

[41] *See e.g.* **Exhs. 73, 74, 75** (Southeast Conference publications prepared by Rain Coast Data).

[42] *Id.*

[43] 2016 LRMP FEIS at 3-442, Table 3-279.

rebounded over the past decade as a result of these changes.[44] Since 2010, there were population increases in nearly all Prince of Wales Island communities that once relied on timber corporations and the federal government for local employment.[45] The population, labor force and job earnings on Prince of Wales Island all increased over the last five years at a higher rate than the rest of southeast Alaska.[46]

As explained in our discussion in Section IV about project impacts to salmon, commercial fishing is the cornerstone of the island's economy. Nature-based tourism has become a primary economic sector on the island over the past two decades, particularly with multiple lodges that include freshwater fishing for steelhead in the island's freshwater streams.[47] The Inter-Island Ferry system alone is a better income generator than the federal government, bringing 3,000 visitors to the island.[48] This type of economic impact accrues to the island because 21st century economic activity in Alaska relies on ecosystem values, particularly values associated with fish, wildlife, and scenery. In 2011, wildlife hunting and viewing generated 2,463 jobs in southeast Alaska, $138 million in labor income and $360 million in total economic output.[49]

B. Range of Alternatives

The Forest Service needs to develop a broader purpose and need statement that allows for downscaled timber extraction alternatives, including alternatives that refrain from extracting old-growth and alternatives that eliminate clearcutting. As noted in Section II.A., the scoping letter's emphasis on providing a substantial timber supply (which can only be done with significant harm to other resources) to an industry of relatively small importance is an overly narrow purpose and need. It is a purpose and need that, if allowed to stand, will preclude other project alternatives that would respond to other, more important considerations – for example, the identified significant issues include effects on wildlife and wildlife habitat, and effects of timber extraction and road construction on watershed condition. Alternatives which continue extensive logging of old-growth forest on Prince of Wales Island fail to address other legal obligations to protect clean water, to maintain habitat for sensitive and subsistence species and to manage forest for multiple uses. The Forest Service could consider, for example, an alternative that instead employs Alaskan construction companies to replace all failed culverts in the project area.

However, for recent Prince of Wales Island agency activities the Forest Service's development of alternatives has consistently ignored the majority public comment made during scoping, requesting downscaled alternatives.[50] NEPA imposes an obligation to

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[44] Prince of Wales Landscape Level Analysis PR Document# PR 833_00583; _00594 (Rain Coast Data 2017).

[45] *Id.;* 833_0488-0494; 0497-0498 (showing a cumulative ten percent population increase in all former federal timber colony communities except for Edna Bay and Naukati from 2010-2016; Edna Bay lost one resident over that time and Naukati lost nine residents).

[46] *Id.;* PR 833_0594 (Rain Coast Data 2017); PR 833_0588 (Alaska Economic Trends 2012).

[47] *Id.;* PR 833_0587 (Alaska Economic Trends 2001); Big Thorne FEIS at 3-454.

[48] Prince of Wales Landscape Level Analysis PR Document# PR 833_0594 (Rain Coast Data 2017).

[49] **Exh. 77** at 24 (EcoNorthwest 2014).

[50] https://cara.ecosystem-management.org/Public/ReadingRoom?List-size=25&Project=50337&List-page=1

"[r]igorously explore and objectively evaluate all reasonable alternatives."[51] An agency must "consider such alternatives to the proposed action as may partially or completely meet the proposal's goal," meaning that it is reasonable to consider alternatives that meet other objectives and attain or prevent the loss of non-timber desired conditions even if they exclude an old-growth timber supply for an intended timber business.[52] The key criterion for determining whether a range of alternatives is reasonable "is whether an EIS's selection and discussion of alternatives fosters informed decisionmaking and informed public participation."[53] Only by studying a reasonable *range* of alternatives can the agency adequately compare the environmental impact of its proposed action, and allow the public to weigh in on alternative courses of action, and determine whether the federal government has other options that would be less damaging to the natural environment.[54]

The range of alternatives must be broader than those in recent NEPA documents that all drive at the same result – intensive clearcutting of old-growth forests in areas that cannot withstand further loss of habitat. Intensive old-growth clearcutting alternatives provide no clear basis for choice, fail to sharply define the issues or allow for informed decisionmaking and provide no means for the public to compare and provide comments on alternatives that would allow for the retention of forested habitat that is essential to maintaining at-risk fish and wildlife populations and reducing significant harm to socio-economic sectors that depend on those resources.

A reasonable range of alternatives must include alternatives that provide for meaningful comparison of courses of action that will generate conservation benefits – particularly when there are significant environmental values that counter the agency's development interests. An agency's NEPA analysis must be informed by the laws driving the action being reviewed.[55] Here, NFMA and its implementing regulations provide the substantive duties with which the agency must comply in amending the Forest Plan. NFMA requires that forest plans provide for multiple uses, including recreation, watersheds, wildlife, and fish.[56] NFMA also sets a hard floor with respect to managing flora and fauna populations: the agency must provide for the "diversity of plant and animal communities."[57] The alternatives developed in recent timber sale projects by the Forest Service have responded to Viking Lumber's interests in old-growth logging. Inclusion in the DEIS of alternatives having downscaled amounts of logging would elevate substantive viability considerations and give the agency the opportunity to effectuate NFMA's multiple use mandate.

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[51] 40 C.F.R. § 1502.14(a); *see also Barnes v. U.S. Dep't. of Transp.,* 655 F.3d 1124, 1131 (9th Cir. 2011).

[52] *City of New York v. U.S. Dep't of Transp.,* 715 F.2d 732, 742-742 (2nd Cir. 1981).

[53] *See* 40 C.F.R. § 1500.1(b), (c); *Westlands Water Dist. V. U.S. Dep't of Interior,* 376 F.3d 853, 872 (9th Cir. 2004)(citations omitted); *New Mexico ex rel. Richardson,* 565 F.3d 683, 708 (10th Cir. 2009)(citations omitted).

[54] *See* 42 U.S.C. § 4332; *Headwaters, Inc. v. Bureau of Land Mgmt.*, 914 F.2d 1174, 1180 (9th Cir. 1990).

[55] *See Or. Nat. Des. Ass'n v. U.S. BLM,* 625 F.3d 1092, 1109 (9th Cir. 2010).

[56] 16 U.S.C. § 1604(e).

[57] *Id.* § 1604(g)(3)(B).

C. Conclusion

In sum, the purpose and need statement for this project has an overly narrow focus on providing a future timber supply for a failing large timber sale purchaser. The Forest Service begins with the false assumptions that federal timber supply can maintain an industry and that maintaining that industry would somehow benefit Prince of Wales Island rather than harm recreation and fishery-based economies. The Forest Service should either cease planning on this misguided project, or develop a new purpose and need statement that reflects the broader economic and ecological needs of southeast Alaska residents and wildlife. For example, the Forest Service could, instead of this proposed action, develop a comprehensive plan to address water quality issues and that would employ the region's 21st century workforce replacing red pipes and remediating road conditions that cause excessive sediment input into streams.

III. Comments on the Timber Sale Program

The Forest Service identified "designing an economical timber sale that contributes to meeting market demand" as a significant issue.[58] The stated need is "to provide a sustainable level of forest products to contribute to the economic sustainability of the region."[59] The agency believes that "[p]roviding old-growth timber would preserve a viable timber industry by providing volume in an economically efficient manner while providing jobs and opportunities for Southeast Alaska residents." [60] The Forest Plan "desired conditions" related to the purpose for this project is to continue timber uses by the "timber industry and Alaska residents" and provide volume to "local mills" and "[m]anage the timber resource … in an economically efficient manner."[61]

NEPA requires federal agencies to disclose sufficient information as needed to ensure "informed decisionmaking and informed public participation."[62] NEPA requires that federal agencies (1) take a hard look at the environmental impacts of proposed projects and (2) ensure the availability of information to the public so as to enable public participation in the decisionmaking process.[63] In particular, NEPA analyses cannot serve this second essential function if they reflect misleading economic assumptions "by skewing the public's evaluation of a project."[64] NEPA thus requires that "[a]gencies shall insure the professional integrity … of the discussions and analyses."[65]

The Forest Service fantasizes that clearcutting up to forty-two million board feet will provide socio-economic benefits. Since the agency's perceived need includes "timber industry" uses and volume for "local mills," this analysis should include a review of Viking Lumber's raw log export practices and implementation of recent Viking Lumber timber sales. Also, the agency's emphasis on "providing volume in an economically efficient manner" implicates the agency's own [in]efficiencies in managing the timber sale program; the DEIS

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[58] 85 Fed. Reg. 178 at 56, 576 (September 14, 2020).

[59] *Id.*

[60] *Id.*

[61] 2016 Tongass National Forest Land and Resource Management Plan at 2-5.

[62] 40 C.F.R. § 1502.1

[63] *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332. 349 (1989)

[64] *Hughes River Watershed Conservancy v. Glickman,* 81 F.3d, 437, 446 (4th Cir. 1996).

[65] 40 C.F.R. § 1502.24.

should provide a clear, complete and candid disclosure of program costs and revenues and sale administration practices..

An EIS serves two functions: (1) to ensure that agencies take a hard look at the environmental impacts of proposed projects and (2) to ensure the availability of information to the public so as to enable public participation in the decisionmaking process. [66] An EIS cannot serve these functions if it reflects misleading economic assumptions.[67] This includes an obligation to disclose any uncertainties about the feasibility of an agency plan or project, such as the relationship between long-term, global timber market declines and the agency's projections. As explained by the Fourth Circuit:

Misleading economic assumptions can defeat the first function of an EIS by impairing the agency's consideration of the adverse environmental effects of a proposed project. NEPA requires agencies to balance a project's economic benefits against its adverse environmental effects. The use of inflated economic benefits in this balancing process may result in approval of a project that otherwise would not have been approved because of its adverse environmental effects. Similarly, misleading economic assumptions can also defeat the second function of an EIS by skewing the public's evaluation of a project.[68]

A. The Forest Service needs to confront the implications of relying on market demand from China

The recent LRMP Amendment and this project purport to provide employment opportunities for southeast Alaska residents in the timber "industry." The 2016 LRMP timber goals and objectives require the Forest Service to provide for a timber processing industry. The plan goal for timber directs the Forest Service to "[m]anage the timber resource for *production of saw timber and other wood products* from lands suitable for timber production."[69] The amended objective similarly directs the Forest Service to supply volume to "local mills."[70]

In 2007, the Regional Forester developed a limited interstate shipment policy, and expanded it in 2009 to allow timber sale purchasers to export 50 percent of total Sitka spruce and western hemlock sawlog volume.[71] The export policy further reduces the return to the local economy from the public spending on the timber program, by diminishing local utilization of timber and local manufacturing employment. The 2016 LRMP FEIS shows that the Forest Service intends to authorize the export of roughly two-thirds of the timber removed from federal forests as unprocessed logs.[72] Because the Forest Service's justification for this project relies primarily on local economic benefits, raw log exports and interstate shipments are the important issue with regard to the economic analysis for this project. The DEIS needs to assess the legal, environmental and employment consequences of the policy.

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[66] *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332. 349 (1989); *State of Cal. v. Block,* 690 F.2d 753, 767 (9th Cir. 1982).

[67] *Hughes River Watershed Conservancy v. Glickman,* 81 F.3d, 437, 446 (4th Cir. 1996).

[68] *Id.,* 81 F.3d at 446; *see also Columbia Basin Land Protection Ass'n,* 643 F.2d at 594-95.

[69] 2016 LRMP at 2-5.

[70] *Id.*

[71] 2016 LRMP FEIS, Appx. H at H-4-5.

[72] 2016 LRMP FEIS at 3-492-3-493, Tables 3.22-8, 3.22-9

A major legal concern is that this is an unlawful policy that arbitrarily conflicts with the purpose of the Organic Administration Act and the Forest Service's local processing regulations for Alaska. The regulations provide five factors for the Regional Forester to consider in determining whether or not to approve exports. The primary two regulatory justifications clearly reflect the understanding that export should occur only when it is surplus to local needs:

"[p]ermit more complete utilization on areas *being logged primarily for local manufacture"*

[b]ring into use a minor species of little importance to local industrial development …." [36 C.F.R. § 223.201(a), (c)].

The Limited Export Policy is an unreasonable interpretation of the regulation and in fact expressly undermines the regulatory policy. In fact, as shown by the Forest Service's own mill utilization reports, the export policy has caused the precise result that the regulation sought to prohibit – exports of jobs along with raw logs. The 2016 LRMP FEIS showed a clear decline in actual "industry"/mill employment relative to federal timber removals over time, with pre-export policy federal timber (2002 – 2007) supporting 2.2 processing jobs per MMBF, and post-liberalized export policy federal timber (2009 – 2014) supporting 1.5 processing jobs per MMBF.[73]

Given the Petersburg Ranger District's recent decision to authorize 100% raw log export from federal lands on Kuiu Island and the agency's longstanding practice of doing so elsewhere, it seems possible that even the current export policy functions as a floor rather than a limit. This job transfer to foreign timber processors should be critical to evaluating the relationship between this project and stated regional economic purposes. According to long-time Republican campaign consultant Ed Rollins, the Forest Service's own reports indicate that "China is the largest consumer of Tongass raw log exports, and drives the market demands for the production in Southeast Alaska."[74] Rollins found that Chinese domination of federal timber "does nothing to bolster the U.S. economy" and that "at the simplest level, American taxpayers are paying for the economic benefits of China."[75] Thus, there is a significant concern that the Tongass National Forest timber sale problem will enable China to "further destroy the old growth forest and world-class salmon habitat of the Tongass, which when protected generates incredible revenue for the state of Alaska."[76]

B. The DEIS needs to disclose large taxpayer losses caused by the Tongass timber sale program

The purpose and need statement repeats words and phrases such as "an economical timber sale" and "an economically efficient manner."[77] The DEIS needs to confront the extent to which this project is neither "economical" or "economically efficient" for the American taxpayers who own the land and fund the agency's appetite for producing large timber sales. NEPA's hard look requirement mandates that a cost-benefit analysis be reasonable.[78] This

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[73] 2016 LRMP FEIS at 3-486-3-488, Tables 3.22-4, 3.22-5, 3.22-6.

[74] **Exh. 65** (Rollins, E. 7.15.2020) Rollins, E. 2020. Maintain Roadless Rule to protect America against China ravaging Tongass National Forest. In: Washington Times, Wednesday, July 15, 2020.

[75] *Id.*

[76] *Id.*

[77] 85 Fed. Reg. 178 at 56, 576 (September 14, 2020).

[78] 36 C.F.R. § 219.12(g); 40 C.F.R. §§ 1502.14, 1502.16; 40 C.F.R. § 1502.24; *Natural Resources Defense Council,* 421 F.3d at 811-12.

means that the analysis must "*fully and accurately*" disclose the costs.[79] There must be sufficient information to "balance a project's economic benefits against its adverse effects."[80] The DEIS thus needs to provide the information the public needs to evaluate this project with respect to timber sale program costs.[81] Such an analysis would respond to the increasing national concern, particularly from national conservatives, regarding the "Chinese government's economic gain at the expense of American interests."[82]

The Tongass National Forest has a long history of fleecing taxpayers. In 2001, When the Forest Service promulgated the Roadless Rule, the timber sale program in Region 10 (Alaska) was one of the two worst performing Regions by generating the largest losses per thousand board feet sold, and ten times the taxpayer loss of all other Forest Service Regions combined.[83] This poor performance primarily reflected higher administrative costs and higher road construction costs.[84] According to a September 2020 report by Taxpayers for Common Sense, Tongass timber sales "consistently generated less revenue than the USFS spends to administer them, resulting in large net losses to U.S. taxpayers.[85] In 2019, the USFS lost $16.1 million and since 1980 has lost $1.7 billion, or $44 million per year on average, and could lose nearly $190 million over the next five years from planned sales.[86] Over the last five years, the average timber sale revenue has dropped to $590,000 per year.[87]

C. The DEIS fails to disclose serious problems with the Forest Service's administration of large timber sales

Defenders requests that the Forest Service cease planning on the this project because the Tongass National Forest has not demonstrated the institutional capacity to administer a large old-growth timber sale, especially for Viking Lumber Company, because of recent oversight, contractual and appraisal issues, some of which may amount to theft. Similar issues have arisen with regard to the Forest Service's second growth timber projects.[88] When the agency spends millions annually on its timber sale program and generates only $590,000 in revenue, an additional loss of $1.7 million due to direct maladministration is a significant problem.[89]

The Tongass National Forest has a long history of permitting timber operators such as Viking Lumber Company to operate in a lawless manner in Southeast Alaska, ignoring

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[79] *Sierra Club v. Sigler*, 695 F.2d 957, 975-76 (1983).

[80] *Hughes River Watershed Conservancy*, 81 F.3d at 446.

[81] *Columbia Basin Land Protection Ass'n,* 643 F.2d at 594.

[82] Exh. 64 (Hayworth, Hon. Rep. J.D. (R-Ariz), 8.24.2020)

[83] Roadless Area Conservation Rule FEIS at 3-298, Table 3-57 (Region 3 and Region 10 generated taxpayer losses of $178 and $179 per thousand board feet, respectively, 22 times as much the only other region that operated timber sales at a deficit).

[84] *Id.* at 3-303.

[85] **Exh. 66**. Taxpayers for Common Sense. 2020. Cutting Our Losses after 40 Years of Money-Losing Timber Sales in the Tongass.

[86] *Id.*

[87] *Id.*

[88] **Exh. 9**. (Peer 5.21.17, Complaint to IG on Kosciusko GNA project.)

[89] **Exh. 78** (PEER 3.28.17).

timber export violations, scaling fraud, and timber theft.[90] In 2016, the Washington Office reviewed the Alaska Region's timber sale and administration processes for two Viking Lumber timber sales – the Tonka Timber Sale on Lindenberg Peninsula and recent Big Thorne Project on Prince of Wales Island. The review showed that: (1) the Tongass National Forest allowed Viking to high grade the most ecologically valuable trees rather than the trees intended for removal; (2) the Forest Service failed to conduct timber-theft prevention inspections and (3) all monitoring and reports of timber removals, etc. were self-reporting by Viking Lumber Company.[91]

The failure of the Forest Service to inspect Viking's activities and require adherence to the timber sale contract for the Tonka sale cost taxpayers $2 million alone – more than twice the amount Viking paid for the timber.[92] On-the-ground operators admit that harvest prescription or contract terms were irrelevant to what happened on the ground – they cut only according to Viking Lumber's instructions.[93] The appraisal methods resulted in artificially low appraisal rates for higher value species such as Alaska Yellow Cedar and Sitka Spruce.[94] And changes to the timber sale resulted in the logging and haul costs being much lower than appraised by the Forest Service, resulting additional windfalls to Viking Lumber.[95] After receiving that windfall of more than $2 million dollars under the Tonka contract, Viking Lumber requested more taxpayer money from the Big Thorne contract based on its claim that the Forest Service economic analysis undercut its profits through poorly estimated tow and haul costs.[96] Regional Forester Becky Nourse then agreed to this additional windfall.[97]

Defenders submits these issues also bear significantly on the agency's ability to implement standards and guidelines, such as they are, intended to protect other resource values. How can the Forest Service rely on Viking Lumber to apply Forest Plan Standards and Guidelines for other forest values such as den, nest or riparian areas in the absence of responsible oversight? There has been no indication that the agency has taken any steps to correct these issues.[98]

In sum, the Tongass National Forest and Alaska Region of the Forest Service lack the institutional capacity and will to administer a large timber sale for a lawless timber operator like Viking. Further NEPA analysis must disclose and discuss the Forest Service's ability to ensure the accountability of its timber sale program.

D. The DEIS needs to consider deferring timber take from public lands, given large volumes of timber other agencies are expected to provide

Defenders requests that the DEIS assess whether the Alaska Mental Health Trust and other timber agencies can supply Viking Lumber, to enable the Forest Service to scrap this

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[90] **Exh. 3**. PEER. 1996. Stealing the Tongass.

[91] **Exh. 5**. Washington Office Timber Sale Review; **Exh. 6** PEER. 2017. Inspector General Audit Request.

[92] **Exh. 4**. Tonka Timber Sale DXPRE Post-Harvest Monitoring Results.

[93] *Id.*

[94] *Id.*

[95] *Id.*

[96] **Exh. 8**. Pendleton 2018.

[97] **Exh. 7**. Nourse, R. 2017.

[98] **Exh. 79** (PEER 6.29.17).

project. These other sales available from the Forest Service's partner timber agencies either reduce the demand for supplying federal timber or fulfill it.

Federal timber supplied slightly less than half of the total timber take in southeast Alaska from 2002 to 2014.[99] The 2016 Forest Plan Amendment FEIS projected a proportional increase in timber take from non-federal lands, such that non-federal logging will comprise roughly two-thirds of the projected total take over the next fifteen years.[100] This change reflected a substantial timber supply coming from the state of Alaska, Sealaska corporation and the Alaska Mental Health Trust.[101] For example, Appendix C to the Prince of Wales Landscape Level Analysis FEIS identified 98.6 MMBF in planned state timber sales.[102] The Alaska Mental Health Trust now has 101 MMBF available from 4,695 acres, and has another 12,350 acres pending the finalization of the land exchange which would amount to nearly 300 MMBF based on the volume available from its existing lands.[103] The University of Alaska likely has another 100 MMBF to donate to the cause.[104] And there may be another 750 MMBF available from Sealaska corporate lands over the next 15 years.[105] These potential removals – well over a billion board feet – merit detailed consideration in the DEIS as potential replacements for federal timber in international raw log export markets (as well as their addition to cumulative impacts on non-timber forest resources and uses).

IV. Comments on aquatic habitat: the project presents unacceptable risks to fishery resources

The scoping notice identified impacts of timber harvest and road construction on watershed condition as a significant issue. Recent timber sale analyses indicate that on Prince of Wales Island there are a number of watersheds at risk, with 447 red pipes blocking 90 miles of salmon habitat, and a need for a number of watershed treatments deemed necessary to mitigate losses to salmon production. There is ample scientific evidence that landscape-scale modifications, such as the island's system of logging roads, impair and reduce salmon production capacity.[106] This project would further reduce Prince of Wales Island's salmon production by building roads near to and across fish habitat, accompanied by degrading drainages through intensive logging of old growth – and do so at this time when the island's salmon production capacity is at risk due to multiple environmental factors, including from climate change.

New information shows significant resource declines, with habitat degradation and a rapidly changing climate as potential causal factors. The agency needs to promptly arrest declines in habitat conditions in areas previously logged or available for logging, initiate appropriate habitat restoration, and prevent any further habitat degradation, whether for remaining intact habitat or for the highly productive, recovering watersheds that occur throughout the Thorne Bay Ranger District.

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[99] 2016 LRMP FEIS at 3-486.

[100] *Id.* at 3-493.

[101] *See id.*; FEIS Vol. II, Appx. C at C-11-15

[102] Prince of Wales Landscape Level Analysis FEIS, Appx. C.

[103] *Id.*

[104] *Id.*

[105] *Id.*

[106] *See e.g.* Exh. 124 (Rhodes 2013); Exh. 133 (Frissell 2019) and reference lists attached to both sets of comments.

There is uncertainty about the effects of past and present Tongass National Forest management on specific salmon populations. Most past industrial logging on the island occurred disproportionately in the highest quality salmon habitat, leaving a legacy of watersheds deficient in many key habitat features. Fluctuations in marine survival and weather cycles, variation in region-wide commercial harvests, and other factors have made it difficult if not impossible to detect specific population declines in heavily logged and roaded individual watersheds. Alaska fishery scientists believe there has been an undocumented but significant loss of productivity from watersheds degraded by past logging.

A. Introduction: the importance of Prince of Wales Island "forest fish"

The Tongass National Forest is a major producer of "forest fish" and a massive contributor to the number and value of salmon caught in Southeast Alaska's commercial fisheries, producing 75 percent of the salmon caught in the region each year.[107] According to Forest Service researchers, findings in their 2019 report quantifying Tongass National Forest salmon production and value "emphasize the importance of Alaska's forest rivers and lakes for sustaining Pacific salmon" and associated commercial fisheries that are "significant contributors to community well-being and the regional economy."[108]

Forests are vital to salmon productivity in aquatic ecosystems by controlling sediment inputs and regulating stream temperatures. The productivity of marine habitat is variable and cyclical, increasing the importance of freshwater habitat and forests in maintaining salmon populations during times of unfavorable ocean conditions. The most prevalent species in island ecosystems managed by the Forest Service are pink and coho salmon. The Tongass National Forest produces 95% or more of southeast Alaska's pink salmon harvest, roughly two-thirds of the coho harvest and in some years as much as half of the sockeye harvest. The $60 million in annual ex-vessel value (the amount paid to fishermen before processing and marketing generate additional value throughout the national economy) of these "forest fish" is a massive, market-based contributor to the regional economy.

Southeast Alaska's commercial seafood harvesting and processing industry is one of the region's two largest private sector economies and depends on ecosystem services provided by the Tongass National Forest. Seven of the top 100 fishing ports by value in the entire country are in southeast Alaska. Salmon is the most important species to these fisheries in terms of volume and value and supports 1 in 10 jobs in the region. Over 1,800 gillnet, seine and troll salmon permit holders typically participate in the fisheries each year. Commercial fishing is a "cornerstone" of the Prince of Wales Island economy with 294 fishing permit holders and 274 crew members - roughly fifteen percent of the island's population - participating directly in commercial fishing. Most of the 1,800 salmon permit holders at some point during a season rely on salmon produced by Prince of Wales Island ecosystems.

North Prince of Wales Island has the highest amount of freshwater salmon and steelhead streams in Southeast Alaska.[109] Nine of the top twenty highest pink salmon producing watersheds in Southeast Alaska lie within Northern Prince of Wales Island. Many of these systems have suffered significant degradation, raising questions about the viability of current and future fish production. Staney Creek, and other karst aquatic systems in the

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[107] **Exh. 69**. Johnson, A.C., J.R. Bellmore, S. Haught, and R. Medel. 2019. Quantifying the monetary value of Alaskan National Forests to commercial Pacific salmon fisheries. North American Journal of Fisheries Management. https://www.fs.fed.us/pnw/pubs/journals/pnw_2019_johnson002.pdf.

[108] *Id.*

[109] **Exh. 67** (Schoen et al 2007a).

project area are notable for producing the largest coho salmon and have superior coho smolt production capability.[110]

But the Forest Service and other landowners have extracted 32 percent of all of the original productive old-growth, the largest amount of large-tree forests in Southeast Alaska, and 35 percent of the riparian forests from the island.[111] Most of the productive watersheds on the island have suffered some level of logging and roading. Staney creek, for example, has had issues with pre-spawning mortalities.[112] There are over 3,000 miles of timber roads, fragmenting the area and posing risks to salmon streams.[113]

B. Develop a watershed alternative with meaningful protective measures for fish habitat

Tongass Land and Resource Management Plan desired conditions and standards for fish instruct the agency to maintain "habitat … to ensure sustainable fish and wildlife and their uses" and "sustain the diversity and production of fish …." Aquatic habitat quality should be "good to excellent" so "[f]ish thrive in the Forest's lakes and streams due to good water quality and other habitat features, *and provide world-class fisheries*." The agency should, among other things, prevent adverse effects to rearing and spawning habitat.

If you do proceed with this timber sale, the DEIS should include an alternative that addresses these desired conditions and standards for a aquatic habitat in a significant way by including: (1) a full watershed analysis on a large scale so that the analysis encompasses road-stream connectivity across the affected landscape; (2) a prohibition on temporary or NFS road construction or reconstruction within 300 feet of any waterbody, including Class IV streams; (3) 300 foot riparian no-cut buffers on both sides of all streams, including Class IV streams and (4) funded mitigation aimed at fixing barrier culverts. These measures respond to recent reviews of Tongass timber analyses by expert fishery scientists who are highly critical of the agency's assumptions and Forest Plan standards. Also, an aquatic habitat alternative should provide substantially downscaled timber volumes. We have provided reference materials showing the inadequacies of the Forest Service's riparian standards, Best Management Practices and fundamentally flawed reserve system that support these requests in Exhibit 87, Salmon Science Reference List.

1. Full watershed condition analyses are needed at multiple scales

The Forest Service should engage fisheries research scientists and fisheries managers in an inventory of watersheds and road systems that identifies risks to specific salmon stocks, and causes which may vary for different species and in different ecosystems. Road systems cross multiple watersheds on the island making it necessary to assess impacts and conditions on a larger scale. There has not been any meaningful assessment of Tongass National Forest watershed conditions that affect fish since the 1990s. There is a need to understand existing watershed/fish habitat conditions such as summer stream temperatures, identify areas in need of immediate restrictions on timber extraction and consider corrective measures, such as barrier culvert replacement.

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[110] *Id.*

[111] *Id.*

[112] *Id.*

[113] *Id.*

An urgent concern that warrants watershed analyses at regional and project-specific scales is summer stream temperature. Forest Plan Guideline F directs the agency to "maintain or restore optimum water temperatures for salmonids …." Summer stream temperatures on known fish-bearing streams should be between "50 & 68 degrees Fahrenheit or at natural levels." Summer stream temperatures throughout Alaska and in the Tongass National Forest have recently and significantly exceeded levels deemed safe for fish. But the Tongass National Forest does not collect stream temperature data as part of project-level analyses, and wrongly relies on narrow riparian buffers to regulate stream temperatures.

Timber projects significantly elevate stream temperature, even in systems with riparian buffers. Shade removal on unbuffered, Class IV streams is also a major factor. Watershed analyses are necessary to assess factors that cumulatively affect water temperatures, whether cumulative loss of riparian shading or microclimate regulation due to roads, landing and logging. Loss of temperature regulation services caused by logging and road construction can be irreversible. Thus elevated water temperatures of just a half degree Fahrenheit are a significant concern in a changing climate because they cause serious and chronic negatively impacts on all forest fish, including direct habitat loss, thermal passage barriers, reduced egg survival and increased susceptibility to disease.

2. Forest fish need wider riparian buffers, especially on Prince of Wales Island

There is a significant concern about the effectiveness of Best Management Practices (BMPs) in mitigating harms to fish habitat, particularly compared to limiting or avoiding activities that damage aquatic habitat in the first place. Effective mitigation strategies are those that prohibit logging and road construction activities in a riparian no-cut buffer with sufficient width to prevent or reduce transmitting upslope impacts to streams. The Tongass National Forest relies largely on riparian buffers to meet planning objectives to protect aquatic habitats and their water quality and manage them for short- and long-term biodiversity and productivity, including fish production. The problem is that Tongass National Forest no cut buffers only extend to 100 feet of either side of Class I streams and Class II streams that flow directly into a Class I stream. These buffer requirements exclude smaller streams that influence downstream water quality and are not wide enough to reduce upslope impacts, to maintain riparian functions or prevent further degradation of aquatic habitat conditions.

Forest planners in the lower 48 recognized that water quality in streams that support Pacific Northwest salmon depended on the integrity of surrounding upland and riparian areas. Measures to conserve the species included extended riparian habitat conservation areas to 300 feet for fish-bearing streams, and 150 feet for permanent non-fish bearing streams and around ponds, wetlands and other waterbodies greater than one acre. The wider, no-cut buffers respond in part to studies showing that the wider buffers were the most effective way to limit impacts from upslope logging disturbances.

Wider buffers are also necessary because roads contribute sediment to streams at multiple points whenever they are relatively close to streams, particularly in areas with high levels of precipitation. Studies from the Pacific Northwest found that roads within 300 feet of streams cause significant increases in sediment delivery to downstream fish habitats. Road construction and use outside of the Tongass National Forest's narrower 100-foot buffers immediately elevates erosion and sediment delivery and can cause elevated sediment delivery relative to undisturbed areas for decades. This is a major problem because roads are the single largest source of fine sediment which is the most harmful to salmon. Another

significant problem is that roads pierce buffers at stream crossings, significantly weakening buffer effectiveness.

Finally, buffer requirements need to encompass currently unbuffered headwaters streams (Class III streams exempted from buffers under the Forest Plan and Class IV streams that do not normally provide habitat for fish) that are a major source of sediment delivery to downstream fish-bearing streams. These streams are collectively important because they usually comprise the bulk of a stream network and are more vulnerable to sedimentation and peak flow alteration by roads, and upslope activities. The failure to buffer these smaller streams will degrade various downstream fish habitat features, including temperatures, that affect salmon survival and productivity.

3. The project should prohibit road density increases to protect fish

Numerous scientific studies show that watersheds with high proportions of roadless area support higher numbers of salmon and more diverse salmon populations. In other words, road density increases degrade salmon habitats and reduce in salmon populations. The Forest Service's own researchers (Gucinski et al, 2001; USFS & USBLM 1997) have found ample evidence showing that increasing road densities, even at low levels, lead to declining salmon populations. The project should prohibit additional road construction within watersheds at specific thresholds. For example, a road density of .1 mile per square mile generally means a low level of stream degradation while .7 miles per square mile equates to high levels of habitat degradation. This means that most project area watersheds have road densities that exceed the "high" level of habitat degradation by a factor of two. Road construction, including temporary roads, can cause enormously elevated sediment relative to undisturbed areas for decades. There are no Best Management Practices that can eliminate these impacts, particularly sediment discharges at stream crossings.

C. The DEIS needs to disclose and analyzes risks to fisheries and the fishery economy

The DEIS needs to discuss the current status of island fish populations and the relevance of salmon production trends across southeast Alaska. Until very recently, the Tongass National Forest produced average harvests of 37 million pink salmon and 1.8 million coho.[114] But 2016 was the first of a series of recent even-year pink salmon fishery disasters for southeast Alaska.[115] Coho harvests began to decline significantly in 2018.

Commercial fishing regulatory districts in southern southeast Alaska, especially Area 2 adjacent to Prince of Wales Island and Area 1 near Ketchikan, provide the majority of the pink salmon harvest during the even year cycle – as much as ninety percent of the harvest.[116] Significant fishing restrictions and closures in northern southeast Alaska have heightened the importance of returns to Prince of Wales Island and other southern southeast Alaska pink salmon producing watersheds.[117] It is alarming that southern southeast Alaska pink salmon returns have started to fail during even years and have also become weaker during the odd year cycles due to unknown causes.[118] ADF&G closed the 2020 season early

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[114] **Exh. 69** (Johnson et al 2019).

[115] **Exh. 1** (Walker 2016).

[116] **Exh. 39** (ADF&G 2017).

[117] **Exh. 41** (NOAA 2018); **Exh. 42** (Viechnicki 2017a).

[118] **Exh. 37** (Fishermen's News Online 2017); **Exh. 40** (Viechnicki 2017).

based on a historically low rate of harvest and below average escapements.[119] The coho season was roughly half the 20 year average and the lowest on record over the past three decades.[120]

The Forest Service's 1995 Anadromous Fish Habitat Assessment made numerous findings and recommendations related to reducing the impacts of industrial clearcut logging on salmon habitat in southeast Alaska. The Assessment explained that:

> The cumulative effects of frequent disturbances in the Pacific Northwest have been shown to substantially reduce the quality of freshwater fish habitats resulting in negative consequences for species, stocks, and populations of fish that depend on them, even if coniferous cover is left in buffer strips along the fish-bearing streams. Fish-bearing streams represent only a small portion of stream mileage in any watershed. Because recovery of fish habitat from the effects of extensive logging in a watershed may take a century or more, recovery may never be complete if forests are clearcut harvested and watersheds are disturbed extensively on rotation cycles of about 100 years. Few refuges remain in a watershed that fish can use during such widespread, intense, and recurrent disturbances.
>
> …Should freshwater habitats be degraded for long periods, *salmon and steelhead stocks will eventually be confronted simultaneously with low marine productivity and degraded freshwater habitat. The likely result of such double jeopardy could be high, long-term risk of extinction*.[121]

Given current trends in pink and coho salmon production, the Tongass National Forest timber sale program and particularly this project present the "double jeopardy" situation described above. Scientific studies have found strong negative correlations between logging road density, timber extraction and salmon productivity.[122] Also, the cumulative effects of climate change and habitat degradation increase these risks and warrant disclosure and analysis.[123] For example, NMFS has found that logging has:

> … degraded coho salmon habitat through removal and disturbance of natural vegetation, disturbance and compaction of soils, construction of roads and installation of culverts. Timber harvest activities can result in sediment delivered to streams through mass wasting and surface erosion that can elevate the level of fine sediments in spawning gravels and fill the substrate interstices inhabited by invertebrates. The most pervasive cumulative effect of past forest practices on habitats for anadromous salmonids has been an overall reduction of habitat complexity from loss of multiple habitat components. Habitat complexity has declined principally because of reduced size and frequency of pools due to filling with sediment and loss of LWD (large woody debris)…. As previously mentioned, sedimentation of stream beds has been implicated as a principal cause of declining salmonid populations throughout their range ….

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[119] **Exh. 49** (ADF&G, August 18, 2020); **Exh. 63** (KFSK 8.30.20).

[120] **Exh. 62** (ADF&G 9.15.20).

[121] **Exh. 48**. U.S. Forest Service. 1995. Report to Congress: Anadromous fish habitat assessment. Pacific Northwest Research Station, Alaska Region. R10-MB-279.

[122] *See e.g.* **Exh. 124** (Rhodes 2013); **Exh. 133** (Frissell 2019) and reference lists attached to both sets of comments.

[123] **Exh. 134** (Bryant 2008).

> Several studies have indicate that, in [southern Oregon/northern California], catastrophic erosion and subsequent stream sedimentation [from major floods] resulted from areas which had been clearcut or which had roads constructed on unstable soils.[124]

Given these findings and recent declines in fishery outputs, the DEIS needs to evaluate and disclose losses associated with lost fishing revenues caused by logging and road construction. Habitat loss has a substantial impact on the commercial fisheries. It is possible to estimate the loss of salmon related economic values caused by logging and related road construction.[125] Canadian researchers in 2003 developed habitat values (which the authors described as conservative estimates) that ranged from $.026 to $1.40 per acre of watershed, or $1,491 to $7,914 per mile of spawning stream (converted to 2003 U.S. dollars – or roughly $10,000 per mile of spawning stream today).[126] A 1988 study identified significant economic losses to salmon fisheries caused by logging and road construction on just 21% of the Siuslaw National Forest.[127] Another study found that "if habitat improvements resulting from salmon-related logging restrictions generated one additional fish for the recreational fishery per year per acre for the foreseeable future, the asset value of the habitat would be about $2,800 per acre" or seven times the forgone timber asset value of the land.[128]

In other words, this project will significantly sacrifice annually renewable economic outputs in order to supply Viking Lumber and Chinese mills. The DEIS needs to assess the significant positive economic impacts of the no-action alternative in terms of reducing risks of further declines in fishery outputs and disclose the significant risks that further aquatic degradation presents to fishery resources, particularly in combination with climate change.[129]

D. The Forest Service must include a funded plan to replace red culverts

A major habitat problem for Southeast Alaska salmon is the number of stream miles blocked by failed culverts ("red" or "barrier culverts"). Road crossings of any kind over streams, and particularly failed culverts, can over time begin to impede fish passage or become complete barriers. Barrier culverts throughout a watershed cumulatively reduce

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[124] Endangered and Threatened Species: Threatened status for Southern Oregon/Northern California Evolutionarily Significant Unit (ESU) of coho salmon. 62 Fed. Reg. 24588 at 24593 and 24599. May 6, 1997.

[125] **Exh. 47**, Foley, et al. 2012. A review of bioeconomic modelling of habitat-fisheries interactions. In: International Journal of Ecology, Vol. 2012. Doi:10.1155/2012/861635; **Exh. 46**, Knowler, D. et al. 2001. Valuing the quality of freshwater salmon habitat – a pilot project. Simon Fraser University. Burnaby, B.C.: January 2001; **Exh. 45**, Knowler, D.J., B.W. MacGregor, M.J. Bradford, and R.M. Peterman. 2003. Valuing freshwater salmon habitat on the west coast of Canada. In: Journal of Environmental Management, 69: 261-273 (Nov. 2003). Available at: www.sciencedirect.com/science/article/pii/S0301479703001543.

[126] **Exh. 45** (Knowler et al. 2003).

[127] Loomis, J.B. 1988. The bioeconomic effects of timber harvesting on recreational and commercial salmon and steelhead fishing: a case study of the Siuslaw National Forest. In: Marine Resource Economics, Vol. 5; 43-60 (1988). This article can be reviewed in its entirety (but not downloaded) at www.jstor.org/stable/42871964?seq+2#page_scan_tab_contents. ***We request that the Forest Service obtain this study and include it in the planning record.***

[128] **Exh. 44** ECONorthwest. 1999. Salmon, timber and the economy. Numbers in 1999 dollars.

[129] *See, e.g.* Exh. 83 (Johnson, T. 2016).

salmon stream productivity by impairing in-stream migration and foraging by juveniles, slowing their growth and development.

The agency must consider a mitigation measure that fixes fish passage on the island. The Forest Plan directs the agency to "[m]aintain, restore, or improve," stream conditions that impede fish passage and "include funding for maintenance in the planning and budgeting for all projects. The Tongass National Forest has failed to meaningfully address fish passage concerns for two decades, and the agency needs to include fixing more than a mere few to mitigate harms from this project. Fixing these problems is also an obligation under the Clean Water Act and Alaska state law.

During the 1990s, the Alaska Department of Fish and Game surveyed 60 percent of Tongass National Forest roads to assess fish passage problems. Two-thirds of the culverts on Class I streams (179) and 85 percent of the culverts on Class II streams (531) failed fish passage standards.[130] The Forest Service addressed some of these problems between 1998 and 2006, fixing roughly 50 sites per year. The culvert repair program ended in 2006 due to funding cuts. Now there are 1,100 red culverts blocking 270 stream miles of fish habitat, with most of them concentrated in central and southern Southeast Alaska. On Prince of Wales Island, the agency considered fixing fourteen out of 447 red culverts in 2020 as part of the larger Prince of Wales timber project, but only funded fixing three. Neither the 2009 Prince of Wales Access and Travel Management Plan nor the 2013 Big Thorne Project achieved any meaningful progress on known priority fish passage concerns because it is not a funded agency priority.[131]

The issue of blocked culverts is so important to salmon habitat that tribes have sued the state of Washington in order to require it to fix barrier culverts in order to increase salmon populations in the region.[132] As explained by Earthjustice in an amicus brief filed on behalf of commercial fishermen in the state of Washington:

> … because barrier culverts block access to habitat entirely, barrier removal is frequently the most effective recovery measure (and often the measure with the most immediate positive impact) when compared with other habitat recovery efforts, such as reforestation, repairing stream-straightening or channelization, or increasing flows. *And obviously, other habitat restoration efforts will be futile if salmon are unable to access the restored habitat.*

EarthJustice's brief noted that the district court agreed that barrier culverts "have a significant total impact on salmon production" due to "a negative impact on spawning success, growth and survival of young salmon, upstream and downstream migration, and overall production." Thus, removing them "provides immediate benefit in terms of salmon production, as salmon rapidly re-colonize the upstream area and returning adults spawn there."[133]

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[130] **Exh. 82** (ADF&G 2000).

[131] *See* https://www.fs.usda.gov/nfs/11558/www/nepa/10788_FSPLT1_014866.pdf at 159 -167 (identifying 377 red crossings blocking 70 stream miles across the system in that project area); Forest Service, 2013. Big Thorne Project FEIS at 3-352.

[132] **Exh. 43** (PCFFA 2017).

[133] *Id.*

E. The Forest Service must consider alternatives and mitigation measures for estuarine habitat affected by log-transfer facilities

Additionally, the Forest Service should more carefully assess adverse impacts to estuarine habitat. Both of this project's timber sale areas will likely require the use or reconstruction of five log transfer facilities. During the 1990s, the use of LTFs by the Forest Service and others caused severe damage to sixteen saltwater ecosystems in southeast Alaska, resulting in the designation of Category 5 impaired waterbodies.[134] Five of these LTFs are on Prince of Wales Island.[135] Fortunately, a significant decline in industry activity has reduced or eliminated use of many of these LTFs, resulting in partial attainment of water quality standards and some recovery of aquatic habitat after several decades of non-use or reduced use.[136]

Defenders has significant concerns about LTFs on Prince of Wales Island and increased volume of timber moved through by state and private timber operators. The potential direct, indirect and cumulative effects of federal and non-federal log rafting on fisheries and fishery habitat is a significant concern and requires detailed NEPA analysis.[137] In-water log storage degrades water quality below levels necessary to protect existing commercial fisheries. There is a significant body of science that shows the incompatibility of the marine log storage with benthic habitat. Scientists and resource managers recognize that toxins, bark debris accumulations and the low dissolved oxygen levels they cause adversely impact shellfish species such as Dungeness crab in numerous ways, causing reproductive problems, disease, deformities, prey depletion.[138]

For these and other reasons related to water quality degradation and impacts to the region's more important economic sectors, the LRMP provides that "[w]here feasible, preference should be given to onshore storage and barging of logs." Because the large volume of timber for this project combined with uses by the non-federal timber agencies meets or exceeds the volumes that caused Category V water quality, the Forest Service needs to prohibit in-water log storage in LTFs.[139] The Forest Service should "[a]void, where

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[134] Alaska Division of Environmental Conservation. __. PUBLIC NOTICE DRAFT Integrated Water Quality Monitoring and Assessment Report at 41-50, 80.

[135] *Id.* at 45, 49-50, 80.

[136] *Id.* at 41-50.

[137] 40 C.F.R. § 1508.18.

[138] *See e.g.* **Exh. 52**, Washington Dept. of Fish and Wildlife. 2008. Management Recommendations for Washington's Priority Habitats and Species: Dungeness Crab; **Exh. 56**, Sedell, J.R., F.N. Leone and W.S. Duval. Water Transportation and Storage of Logs. IN: Meehan, W.R. 1991. Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19; **Exh. 61**, O'Clair, C.E., and J.L. Freese. 1988. Reproductive condition of Dungeness crabs, Cancer magister, at or near log transfer facilities in Southeastern Alaska. Marine Environmental Research 26:57-81; **Exh. 59**, Morado, O'Clair & Sparks. 1988. Preliminary Study of Idiopathic lesions in the Dungeness crab, Cancer magister from Rowan Bay, Alaska; **Exh. 60**, O'Clair, C.E. and L. Freese. 1985. Responses of Dungeness crabs, Cancer magister, exposed to bark debris from benthic deposits at log transfer facilities: Survival, feeding and reproduction. Pages 227-229 in B.R. Melteff, Symposium Coordinator. Proceedings of the symposium on Dungeness crab biology and management. Univ. of Alaska Sea Grant Rep. 85-3; **Exh. 55**, Kirkpatrick, B., T.C. Shirley and C.E. O'Clair. 1998. Deep-water bark accumulations and benthos richness at log transfer and storage facilities. Alaska Fishery Research Bulletin, vol 5(2): 103-115.

[139] *See* Exh. 58 at 2 (NMFS 2006)(recommending that the EPA not issue a general permit for in-water log storage in southeast Alaska because adverse impacts to marine habitat).

practicable, siting log transfer, rafting and storage facilities in areas with established commercial, subsistence, and sport fishing activity, high levels of recreation use, areas of high scenic quality, or documented concentrations of species commonly pursued by commercial, subsistence, and sport fishers." Also, LTFs should not be located "in areas known to be important for fish spawning and rearing because of "the high value of the fisheries resources." However, these guidelines are too discretionary, and readily waived every time Viking Lumber whines that barging is too expensive.

The Forest Service needs to provide detailed information about the actual amount of timber transferred through the LTFs, and analyze whether those locations would be consistent Appendix G guidelines. The discussion needs to disclose the adverse environmental impacts caused by bark accumulation and the numerous other adverse and potentially long-term impacts caused by anaerobic conditions and benthic pollution that is toxic to many marine organisms.[140]

The DEIS should also comply with the consultation and best available science requirements of the Magnuson-Stevens Fishery Conservation and Management Act with regard to Essential Fish Habitat. The increased use of federally funded or operated LTFs by federal, state and private operators involves "potentially large numbers of individual actions that may adversely affect EFH."[141] Further, the level of detail in an EFH should reflect the best available science, and provide an analysis of adverse effects and proposed mitigation.[142] The significance of nearshore areas to the commercial fisheries warrants a literature review, further site-investigations, and consideration of alternatives that could minimize or avoid adverse effects, including a prohibition on in-water log storage.[143]

A NEPA analysis must provide a detailed discussion of means to mitigate adverse environmental impacts and the effectiveness of those measures, and cannot forgo this analysis by deferring to state regulatory agencies.[144] The Forest Service needs to evaluate how it will minimize the effects of in-water log storage or clean up the mess afterwards. Timber operators in British Columbia employ site deactivation procedures in order to minimize long-term impacts and conduct baseline assessments prior to development.[145] The Washington Department of Fish and Wildlife recommends replanting marine vegetation and removing woody debris in order to mitigate LTF effects on crab.[146]

In sum, the DEIS must provide detailed information about existing proposed new LTF sites, the impacts on the commercial fisheries, consult with NMFS and provide a full analysis of LTF impacts to fish and shellfish habitat, and includes means to mitigate impacts, including a prohibition on in-water log storage, contemporary mitigation measures, and seasonal and timing restrictions on log transfer activities to mitigate disruptions to commercial and recreational users of southeast Alaska's bays and inlets.

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[140] **Exh. 58** at 2 (NMFS 2006).

[141] 16 U.S.C. § 1855(b)(2); 50 C.F.R. § 600.920(j)(1).

[142] 50 C.F.R. § 600.920 (d), (e)(3).

[143] *Id.*

[144] 40 C.F.R. § 1502.16(h); *Oregon Natural Resources Council v. Marsh,* 382 F.2d 1489 (9th Cir. 1987); *Friends of the Earth v. Hall,* 120 (W.D. Wash. 1988 (state agencies cannot address the sufficiency of a federal EIS under NEPA).

[145] **Exh. 51** (Triton Consultants); Exh. 78 (DFO).

[146] **Exh. 52** (WDFW 2008).

V. Consider Climate Change impacts as a significant issue

Defenders requests that the DEIS consider climate change as a significant issue and evaluate this project in terms of how logging impacts climate change and consider, and conversely how logging impacts and the effects of climate change can combine to threaten project area forest resources and uses. NEPA requires disclosure of the effects, impacts, threats and risks – directly, indirectly and cumulatively. For example, rapidly changing environmental conditions necessitate a discussion of the effect of new clearings and roads on abnormal heating and drying of the forest. Old-growth logging (in particular) and also second-growth logging contribute to global carbon emissions and climate change has significant ramifications for forests and biodiversity. Recent Tongass National Forest NEPA analyses have relied on outdated analysis in the 2016 Forest Plan FEIS and simply regurgitate its conclusions:

> Climate change could impact the resources currently managed by the Forest Service as well as how the Forest Service manages the Tongass in the future. While there is general agreement among scientists that the climate of Southeast Alaska is warming, there is considerable uncertainty concerning the scope of the effects of climate change on the forests of Southeast Alaska and how best to deal with possible changes to the many resources managed on the Tongass.[147]

This conclusion ignores obvious recent changes specific to the Southeast Alaska environment. NEPA imposes "a continuing duty to gather and evaluate new information" relevant to environmental impacts.[148] The Forest Service cannot rely on the analysis in the 2016 Forest Plan FEIS and must consider recent and ongoing changing environmental conditions the DEIS for this project.

> When new information comes to light, the agency must consider it, evaluate it and make a reasoned determination whether it is of such significance as to require implementation of formal NEPA filing requirements. Reasonableness depends on the environmental significance of the new information, the probable accuracy of the information, the degree of care with which the agency considered the information and evaluated its impact.…[149]

A 2019 update on climate change effects in the state explains that over the past four years southeast Alaska has experienced record temperatures and a prolonged drought.[150] Alaska's record heat wave in 2019 was newsworthy throughout the state and nation and included exceptionally hot temperatures in southeast Alaska.[151] These changes are occurring at a rapid rate. It is unreasonable to continue to ignore ongoing and rapid environmental changes and regurgitate analysis that dates back to the 2008 TLMP FEIS.

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[147] Alaska Roadless Rulemaking DEIS at 3-128.

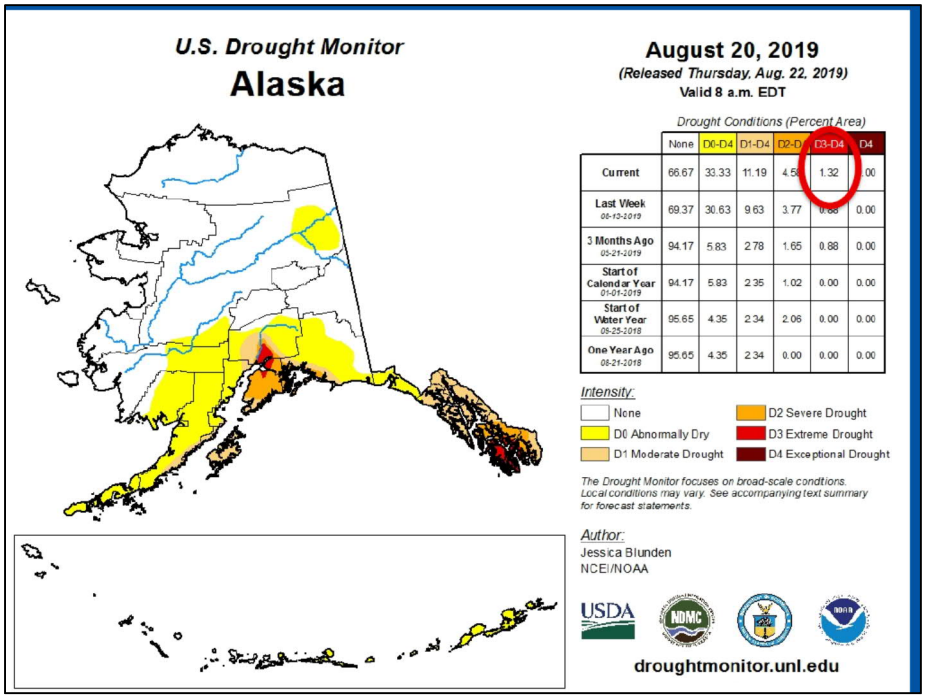
[148] *Warm Springs Dam Task Force v. Gribble,* 621 F.2d 1017, 1023-24 (9th Cir. 1980)

[149] *Id.*

[150] **Exh. 84**. Thoman, R. & J.E. Walsh. 2019. Alaska's changing environment: documenting Alaska's physical and biological changes through observations H.R. McFarland, ed. International Arctic Research Center, University of Alaska Fairbanks.

[151] https://www.nbcnews.com/news/weather/record-heat-alaska-melts-glaciers-hints-bigger-problems-may-be-n1034766; https://www.alaskapublic.org/2019/08/15/alaskas-summer-heatwave/; https://earthobservatory.nasa.gov/images/144796/alaska-hit-with-a-hot-march

For example, Southeast Alaska – particularly the project area on Prince of Wales Island - has just experienced a prolonged drought with record low rainfall. This drought was unusual in that Southeast Alaska is normally one of the wettest areas in the world, yet the Standardized Precipitation Index for the region showed values in 2017-2019 that were the lowest rainfall on record.[152] Then, in 2020, the region had record rainfall amounts and numbers of consecutive rainy days. [153] Both record precipitation amounts and numbers of consecutive wet days are consistent with projections for more extreme weather patterns.[154] Alaska climate scientists explain that these phenomena – "both the very dry conditions relative to the long term normal and this very wet weather" are attributable to the changing climate. [155]



While the no-action alternative is the best response to climate change impacts, if you proceed with this project the DEIS should include an alternative that responds to climate change threats by downscaling the timber volume substantially, and, as explained in other parts of this comment letter, prohibits new road construction and adopts other protective measures for watersheds that address climate projections for increases in landslides and peak flow and stream temperature increases, avoids taking any Alaska yellow cedar, and implements wider buffers between clearcuts to account for increased storm intensity.

VI. Cedar decline and high-grading of large trees and cedar are a significant issue warranting detailed analysis in the DEIS

Recent scientific studies explain that climate change is "altering conditions for tree recruitment, growth and survival and impacting forest community composition."[156] These impacts include threatening successful tree regeneration, unprecedented climate and disturbance conditions and changes to forest community composition.[157]

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[152] **Exh. 14**. (Thoman, R. 2019).

[153] **Exh. 85** (KRBD 8.30.2020).

[154] **Exh. 86**, Lader, R., J.E. Walsh, U.S. Bhatt & P.A. Bienek. 2017. Projections of Twenty-First-Century Climate Extremes for Alaska via Dynamical Downscaling and Quantile Mapping. In: Journal of Applied Meteorology and Climatology 56. September 2017.

[155] **Exh. 85** (KRBD 8.30.2020).

[156] Exh. 88. Bisbing et al. 2019. From canopy to seed, loss of snow drives directional changes in forest composition.

[157] *Id.*

We request that you consider cedar and large-tree old-growth highgrading and cedar decline as a significant issue, particularly given the extreme past highgrading in the project area and the effort to target project area cedar stands. The DEIS needs to disclose the effect of continued highgrading of old-growth and cedar forest types, whether or how to lessen the cumulative impact of the practice and assess potential impacts of reasonably foreseeable future highgrading both high-volume old-growth and both cedar species. The DEIS should also provide information about cedar regeneration in logged areas on the island and discuss the Alaska Region's developing strategy for cedar conservation and its relevance to this project. Because of the forest-wide significance and because of the extent of cedar decline, the analysis should identify cedar composition and condition in proposed cutting units.

This project will intensify the cumulative highgrading of both cedar species and large-tree old-growth forest on Prince of Wales Island, which are habitat features of high importance for biodiversity and which provide specific values for many wildlife and fish species. Timber companies have already removed old-growth from 380,950 acres on the island, including 192,275 non-federal acres and 80,445 acres over the last 30 years.[158] Sealaska Corporation and the Alaska Mental Health Trust are major landowners will likely log another 93,980 acres of old-growth on the island.[159] This past logging disproportionately removed cedar stands and high volume and large-tree old-growth on North Central Prince of Wales Island.[160]

Cedar highgrading is a significant issue in part because it results in clearcutting large forested areas with ecological effects to old-growth dependent wildlife that range from bear denning habitat to nesting habitat for avian species.[161] As explained in a recent review of British Columbia's logging practices, "the treatment of cedar is the very definition of highgrading: logging one species to the exclusion of another."[162] Throughout British Columbia and southeast Alaska, cedar is one of the few species that generates profits for timber companies.[163] Yellow and red cedar comprise 9.7% and 5.9% of the Tongass National Forest's timber inventory, respectively, but timber companies have removed these species disproportionately.[164] The recent Big Thorne and Logjam sales on Prince of Wales Island, for example, targeted cedar as 34% and 28% of those sales. The recent Prince of Wales Landscape Level Analysis timber sales targeted cedar, which comprised 29% of project volume.[165] The areas proposed for timber take in this project – Red Bay and Staney – have high importance for protection from logging because they have the highest amounts of remaining cedar on the island.

North Prince of Wales has roughly 139,500 acres of yellow cedar forest occurring throughout the area, except in lowland valleys where the timber companies removed all the yellow cedar.[166] Nearly one-third of the yellow cedar within the project area's cedar

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[158] Prince of Wales Landscape Level Analysis FEIS at 3-361.

[159] *Id.*.

[160] Exhs. 67, 68 (Schoen et al 2007a, 2007b).

[161] Exh. 89. Nelson, J. Vanishing Heritage: the loss of ancient red cedar from Canada's rainforests.

[162] *Id.*

[163] *Id.*

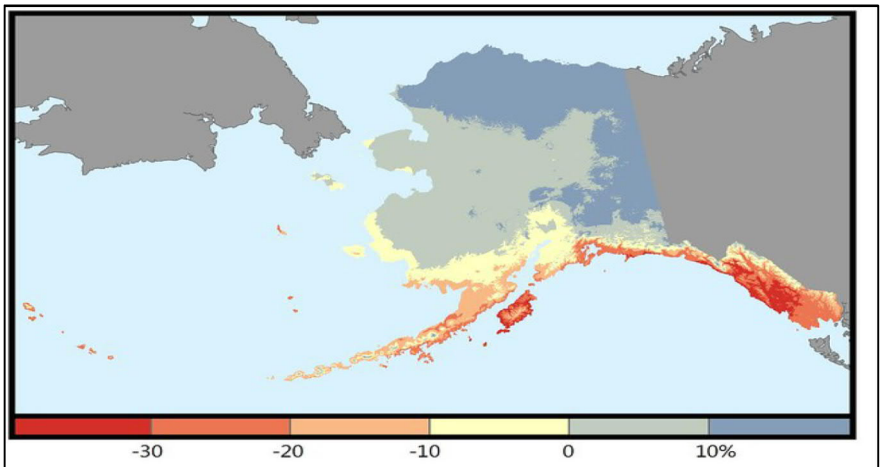
[164] Wilson, B. 2002. Cedar harvest on the Tongass National Forest. (Unpublished). Alaska Region Forest Management.

[165] Prince of Wales Landscape Level Analysis FEIS at 3-111, 3-338.

[166] Exh. 91 (Hennon et al. 2016).

management zone is in decline, and there is a projected increased risk of decline at lower elevations. Natural regeneration is unlikely in the area due to deer browse, and the species will only persist as a major forest component at higher elevations.

It is also a significant issue because yellow cedar decline is the most severe tree die-off ever recorded in North America, spanning half a million acres by 2013.[167] Yellow cedar does not regenerate after logging, meaning that this project will eliminate the species from those areas.[168] Climate change – particularly a reduced snowpack - caused cedar decline through shifts in the frequency of freezing and thawing events in late winter and reduced snow cover.[169] The Forest Service projects further future reductions in the regional snowpack (see map). The DEIS should model these projected snowpack conditions at a finer scale on Prince of Wales Island to inform impacts at the project area.



As warming in Alaska continues, the amount of snowpack remaining at the end of winter will change. The snow-water equivalent, or the amount of water held in the snowpack, on April 1, is predicted to increase in some parts of Alaska, and decrease in others. In the map above, you can see the changes predicted by 2050. (USDA Forest Service)

In sum, Defenders submits that it would be wasteful to remove persisting yellow and red cedar for out of state or Chinese processors. Similarly the remaining large-tree old-growth provides vital ecosystem functions for the island's remaining biodiversity. To respond to the significant issue of cedar decline and forest highgrading, the Forest Service should develop a substantially downscaled alternative that minimizes the take of cedar and large-tree old-growth.

VII. Wildlife habitat impacts are unacceptable

Defenders requests that the DEIS consider population trends and provide a reasonable level of location-specific information. This analysis needs to provide more than a quantitative approach to measuring productive old growth losses at various scales. Instead, there needs to be consideration of specific habitat features that contribute to wildlife viability and abundance, particularly in light of the high degree of natural fragmentation combined with fragmentation in roaded portions of the island. There are already 3000 miles of timber roads on the island.[170] For project area Wildlife Analysis Areas (WAAs), road densities below 1,200 feet are alarmingly high, exceeding 1.5 miles per square mile.

Remaining old-growth habitat for wildlife in project area Wildlife Analysis Areas is at precariously low levels. Only slightly more than a third of deep snow habitat for deer

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[167] Hennon, P.E. 2012.; Hennon, P.E. & D. Wittwer. 2013.

[168] *See* Prince of Wales Landscape Level Analysis FEIS at 3-337 (yellow cedar comprises less than 1 percent of second growth forests); Central Tongass Project DEIS at 3-62.

[169] Exh. 90 (CBD et al. 2015).

[170] Exh. 67 Schoen et al 2007a.

remains in WAA 1422, and only half is left in WAA 1530. The Prince of Wales Landscape Level Analysis FEIS anticipated that WAA 1530 would drop to 20 percent of the estimated 1954 POG and 13 percent of the high volume POG after logging another 3,800 acres. WAA 1422 would drop from 43 percent of its original POG down to 32 percent after logging 6,000 acres. Both WAAs have very little large tree old growth remaining. It is impossible to see how the Forest Service could propose any further logging in these areas without severe risks to fish and wildlife at these levels of past degradation. As explained in expert comments from retired Forest Service planners on the larger Prince of Wales project, planning further degradation is not sane.[171]

A. The Forest Service must analyze the cumulative impacts of alternatives and past and planned logging on wildlife

Timber companies have already logged 380,950 acres on the island, including 80,445 acres over the last 30 years, with another 93,980 acres of non-federal old-growth at risk in the near future. [172] The recent Big Thorne Project, which was until now the largest Forest Service timber sale in decades, authorized Viking Lumber to eliminate the last remaining significant stands and travel corridors in the central part of the island.[173]

NEPA requires that agencies consider cumulative actions in determining the scope of environmental impact statements, meaning actions "which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement."[174] As explained by the Supreme Court, under NEPA, "proposals for … actions that will have cumulative or synergistic environmental impact upon a region … pending concurrently before an agency … must be considered together."[175] In general, the 9th Circuit has explained that:

> [P]rojects need not be finalized before they are reasonably foreseeable. NEPA requires that an EIS engage in reasonable forecasting. Because speculation is implicit in NEPA, we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as a crystal ball inquiry.[176]

There are multiple serious concerns regarding cumulative effects. First, the pending Alaska Roadless Rulemaking threatens remaining roadless refugia on the island. The 2000 Roadless Area Conservation FEIS recognized that inventoried roadless areas provide important habitat to species that are sensitive to disturbance, such as black bears or other large mammals that avoid roads.[177] Inventoried roadless areas function as biological strongholds and places of refuge for wide ranging carnivores such as bears.[178] *Inventoried*

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[171] Exh. 96 (Artley 2017); see also Exh. 97 (Kelly).

[172] USDA Forest Service. 2018. Prince of Wales Landscape Level Analysis Environmental Impact Statement at 3-361. R10-MB-833e. U.S. Forest Service, Alaska Region. October 2018.

[173] *Id.*

[174] 40 C.F.R. § 1508.25

[175] *Kleppe v. Sierra Club,* 427 U.S. 390, 410 (1976); *see also Natural Resources Defense Council v. Forest Service,* 421 F.3d 797, 815 (9th Cir. 2005).

[176] *N. Plains Res. Council, Inc. v. Surface Transp. Bd.,* 668 F.3d 1067 (9th Cir. 2011)(citations and internal quotation marks omitted).

[177] Roadless Rule FEIS at 3-144.

[178] *Id.* at 3-125; 3-142.

roadless areas are of increasing importance than in the past "due to the cumulative degradation and loss of other habitat in adjacent landscapes."[179] Inventoried roadless areas also provide habitat for numerous identified sensitive species, other terrestrial mammals, forest birds, whether cavity nesters or predators like the Queen Charlotte Goshawk, and other species, helping to conserve biodiversity. Roads divide large landscapes and isolate populations, significantly reducing biodiversity. The DEIS should map and analyze the relationship between the project area and any inventoried roadless areas within or adjacent to the project area..

The most serious threat may be the cumulative effects of past logging and prospective second growth logging on Prince of Wales Island. These impacts alone warrant abandoning this project based on the severe long-term impacts associated with additional clearcutting on the island for all wildlife species.[180] As explained in Person and Brinkman's 2013 study, "Succession Debt and Roads," industrial scale clearcutting:

> … will be paid for by long-term ecological consequences resulting from patterns and processes of forest succession and roads. There may be short-term benefits for some wildlife species, but succession debt implies that those benefits are ephemeral and do not reflect conditions for those species over the long term.[181]

Thus, although deer may benefit from new clearcuts during summer and mild winters, "the long-term prognosis is permanent loss of suitable foraging habitat."[182] The delay of the forest recovery process, the displacement caused by logging activities and the impairment of travel corridors will have significant long-term adverse effects that the DEIS must analyze.

There are four stages of forest succession in previously clearcut southeast Alaska forests: (1) stand initiation (1 – 25 years): (2) stem exclusion (25 – 150 years); (3) understory re-initiation (150 – 250 years); and old-growth forest (>250 years).[183] The recovery of many older second-growth stands in biogeographic provinces with high levels of past old-growth logging would fully pass into the understory re-initiation stage over the next 40 to 50 years. The Forest Service's planned plantation rotation is 100 to 110 years old (or less) – preventing the "development of additional, quality habitat and increasing species extirpation risks across the landscape" over the long-term.[184]

This project will add to the already dangerous level of lands remaining at the stem exclusion stage. Given the scale of private and state logging in the planning area, the DEIS to must provide a detailed analysis of the risk of creating a long-term habitat deficit:

> In Southeast Alaska there are many specific ecological factors which explain why logging can have such a negative impact on key wildlife species in this

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[179] *Id.* at 3-142.

[180] 16 U.S.C. § 1604(g)(3)(E)(iv). NFMA's directives on clearcutting mean that it is only acceptable in "exceptional circumstances" or, at a minimum, the Forest Service "must proceed cautiously in implementing an even-aged management alternative and only after a close examination of the effects that such management will have on other forest resources." *Sierra Club v. Thomas,* 105 F.3d 248 (6th Cir. 1997); *Sierra Club v. Espy,* 38 F.3d 792, 799 (5th Cir. 1994).

[181] Exh. 92 at 144 (Person & Brinkman 2013).

[182] *Id.* at 147.

[183] Exh. 18 (Alaback 1984).

[184] *See, e.g.* Exh. 29 (Iverson 1997); **Exh. 30** (Degayner 1997); **Exh. 31** (Iverson 1996a); **Exh. 32** (Forest Service 1995); **Exh. 33** (Iverson 1996b).

> region. Most logging has occurred in low-elevation valley bottoms (<1000') which provide critical habitat for wildlife, especially during times of heavy snow cover. Removal of old-growth forest and its replacement by second-growth forest affects winter habitat for deer in two specific ways: loss of snow shedding capability of complex old-growth canopies (effects mobility and foraging efficiency of deer) and loss of a productive understory plan community (provides forage quality and quantity). Although clearcut harvesting does produce an immediate flush of high quality understory biomass, it typically lasts only 10-25 years, and is not available to deer during periods of heavy snow. The greatest impact occurs three or more decades after logging, during the "stem exclusion" phase of forest stand development, when the densely stocked and rapidly growing young conifers shade out most of the important plant species for deer and other wildlife species. The stem exclusion phase lasts for as much as 150-200 years so can create a long-lasting deficit of wildlife habitat for a given watershed or region, unless an *effective* restoration strategy can be developed.[185]

Thus, it clearly is a significant problem when the Forest Service plans, as here, to increase the old-growth habitat deficit. Decline in sustainable predator-prey communities will occur throughout the most productive areas for deer and wolves in Southeast Alaska because those areas are correlated with the most productive forest stands selected for timber harvest.[186] Studies of Alexander Archipelago wolves consistently show a preference for old-growth forest, flat terrain, avoidance of young growth forest and the potential for population level consequences once large amounts of forest enter the stem exclusion stage over the next two decades on Prince of Wales Island.[187] Succession debt itself will have severe consequences for deer and wolf habitat, and continued levels of logging, along with high levels of second-growth logging in the long-term will have significantly adverse impacts.[188] As explained in remaining sections discussing wildlife species, succession debt will affect all of them.

Finally, as noted in Section III. of this comment letter, non-federal logging will comprise roughly two-thirds of the projected total take over the next fifteen years.[189] This change reflected a substantial timber supply coming from the state of Alaska, Sealaska corporation and the Alaska Mental Health Trust.[190] For example, Appendix C to the Prince of Wales Landscape Level Analysis FEIS identified 98.6 MMBF in planned state timber sales.[191] The Alaska Mental Health Trust now has 101 MMBF available from 4,695 acres, and has another 12,350 acres pending the finalization of the land exchange which would amount to nearly 300 MMBF based on the volume available from its existing lands.[192] The University of Alaska likely has another 100 MMBF to donate to the cause.[193] And there may be another

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[185] Exh. 20 (Alaback 2010).

[186] Exh. 95. David Person Declaration on Big Thorne, 2015, at ¶13e].

[187] Exh. 70 (CBD et al. 2020).

[188] *Id.*

[189] 2016 Tongass LRMP FEIS at 3-493.

[190] *See id.*; FEIS Vol. II, Appx. C at C-11-15 Prince of Wales Landscape Level Analysis FEIS, Appx. C.

[191] Prince of Wales Landscape Level Analysis FEIS, Appx. C.

[192] *Id.*

[193] *Id.*

750 MMBF available from Sealaska corporate lands over the next 15 years.[194] These potential sales will add massively to the old-growth habitat deficit and road density, with up to 566 additional miles of road and over 80,000 acres of clearcuts. The DEIS should do more than simply list these pending clearcuts in an appendix; instead, there should be a map showing where they will occur relative to the project area.

B. The DEIS should develop substantially downscaled alternative to respond to local deer subsistence needs and lack of winter habitat.

As previously explained, we have significant concerns about the lack of high value winter deer range remaining on Prince of Wales Island. Many of the cutting units will likely abut past clearcuts where canopy closures are now or will soon be occurring. The island is already heavily fragmented and contains large portions of what is currently, or soon to be, unsuitable deer habitat due to canopy closure in the extensive created openings and second-growth stands.

In the Alaska National Interest Lands Conservation Act (ANILCA), Congress announced the following policy: "[c]onsistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of public lands in Alaska is to cause the least adverse impact possible on rural residents who depend on subsistence uses of the lands."[195] Congress intended for federal agencies to incorporate a factor of safety into resource management decisions:

> The committee intends the phrase "the conservation of healthy populations of fish and wildlife" to mean the maintenance of fish and wildlife resources and their habitats in a condition which assures stable and continuing natural populations and species mix of plants and animals in relation to their ecosystems, including recognition that rural residents engaged in subsistence uses may be a natural part of that ecosystem; minimize the likelihood of irreversible or long-term effects of such populations and species; and ensures maximum practicable diversity of options for the future. The greater the ignorance of resource parameters, particularly of the ability of a population or species to respond to changes in its ecosystem, the greater the safety factor must be.[196]

The Forest Service has failed to meet this standard for decades by disproportionately removing deer winter range. Most of the logging in southeast Alaska occurred on low-elevation, south facing slopes favored by deer. The recent Prince of Wales Island Landscape Level Analysis FEIS identified declines in deer habitat capability and admits that there will be long-term reductions in carrying capacity and long-term population declines. These disclosures alone warrant downscaled alternatives to provide for rural subsistence uses.

In addition to losses caused by other timber land owners, Viking Lumber removed many of "the last remaining stands of high quality deer winter habitat and travel corridors within their respective drainages within the central part of POW" as part of the Logjam and

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[194] *Id.*

[195] 16 U.S.C. § 3112(1).

[196] Senate Committee on Energy and Natural Resources, Alaska National Interest Lands Conservation Act, S.Rep. No. 413, 96th Cong., 1st Sess. 233 (1979), reprinted in 1979. U.S.C.C.A.N. 5070, 5177.

Big Thorne projects.[197] Experimental Forest Service efforts to create canopy openings in second-growth forests will not replace winter habitat.[198] ADF&G acknowledges that:

> *We should better inform the public regarding the effects of logging on deer populations, so that they are aware of tradeoffs between timber harvest and wildlife.* We anticipate that logging related reductions in important winter habitat will reduce deer carrying capacity for decades to come. The long term consequences of habitat loss include loss of hunting opportunity and the inability to provide for subsistence needs of rural residents.[199]

The island's deer population supports substantial and increasing hunting effort, causing concerns among subsistence users. At the Southeast Alaska Subsistence Resource Advisory Committee's winter 2017 meeting in Craig, subsistence users identified a harder time harvesting deer during the 2016 season.[200] Then, the 2017 deer season "was the worst in recent memory for a lot of hunters on POW."[201] These declines are leading island residents to identify big timber sales as a large part of the problem, and opposition to further sacrifices of old-growth habitat for Viking's operation, even if it means closing the mill.[202] Some residents are now questioning Forest Service plans to sacrifice the island to keep Viking Lumber in operation, because "there's a limit on how much you can donate to the cause."[203]

ADF&G has documented an increased number of hunters over the past decade, including non-residents, causing concerns from subsistence hunters.[204] Part of the increase is due to low deer numbers on islands adjacent to other southeast Alaska communities.[205] Additionally, guided hunts for non-Alaska residents have increased.[206] The DEIS needs to fully analyze implications for subsistence and other deer hunters by providing information about deer population trends, hunting effort, and the importance of island deer for both island residents and residents of other islands who harvest Prince of Wales Island deer due to deer deficits elsewhere.

Given the habitat deficit in the project area, the Forest Service should cease planning on this project, and otherwise, consider specific and more protectives measures than in the past to address key winter habitat needs for deer:

> For ungulates at temperate and higher latitudes, winter is often the limiting season for survival, when cold temperatures and snowfall restrict the availability of forage and increase costs of movement. In addition, vulnerability

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[197] Exh. 35. Bethune, S. 2015. Unit 2 deer at 4-5. Chapter 4, pages 4-1 through 4-15. [*In*] P. Harper and L. A. McCarthy, editors. Deer management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-3, Juneau (emphasis added).

[198] *Id.* at 4-6.

[199] *Id.*

[200] Exh. 36. Southeast Alaska Subsistence Regional Advisory Committee Materials at 83.

[201] Exh. 11 (Jenkins 2017).

[202] *Id.*

[203] https://www.alaskapublic.org/2017/12/18/wolves-and-logging-both-cut-into-prince-of-wales-deer/

[204] Exh. 36 at 91 – 99, **Exh. 35** at 4-3-4-4.

[205] *Id.*

[206] *Id.*

> of ungulates to predators can be higher in snow-covered landscapes because of reduced nutritional condition and increased cost of movements for prey relative to predators. Subsequently, habitat selection of ungulates in winter can be strongly shaped by the landscapes of energetic costs and risk of death. *As snow depth increases, values of habitat to wildlife may be completely reversed from low-snow conditions.* As habitat types with abundant forage but little canopy cover to intercept snow become unusable, habitats with adequate forage and good canopy cover become preferred.[207]

As Person and Brinkman, explain, even if climate change results in milder winters, precipitation and extreme storm probabilities may increase, increasing risks of deep snow events that can substantially reduce deer numbers to low levels for extended periods of time.[208] Because Prince of Wales Island deer are susceptible to both wolves and occasional severe winter die-offs, the DEIS needs to plan for long-term winter range.

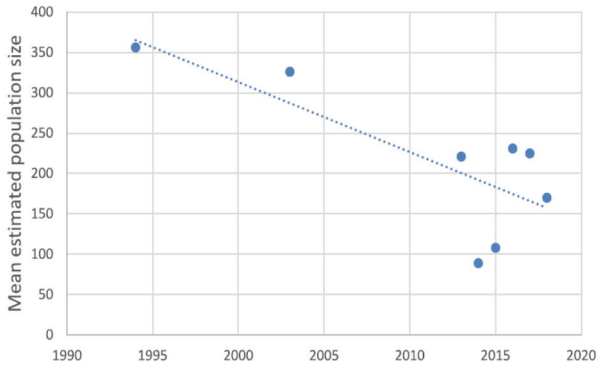
Recent NEPA analyses have indicated that the Forest Service wrongly believes that only south-facing slopes qualify as high to moderate value deer habitat. The DEIS needs to protect remaining deer habitat of any value. It should identify *north-facing* deer winter habitat as deep snow habitat. North-facing habitat is important because many deer do not have access to south-facing habitat, and deer inhabiting north facing habitat are most affected by snow and most dependent on deep snow habitat.

The DEIS also needs to distinguish between different forest stand qualities as deer habitat. As explained in wildlife expert Matt Kirchhoff's comments on the recent Prince of Wales Island timber project, the failure to identify habitat qualities for deer and separately consider actual deep snow habitat is a major flaw. The DEIS should assess deep-snow habitat values for deer based on SD67 stands below 800 feet in elevation rather than HPOG, which does not provide the same snow interception and forage habitat features as an SD67 stands.

C. *Impacts to Alexander Archipelago Wolves alone warrant a moratorium on all Prince of Wales Island large timber sales*

Prince of Wales Island historically supported roughly 37% of the Southeast Alaska wolf population but the population had declined considerably – by roughly 60 percent - over the past 15 years.[209] From 2015-2018, the population increased slightly at trapping limits based on 20 percent of the autumn population estimate.[210]

Figure 2. Estimated population decline in the GMU 2 wolf population based on available mean autumn population estimates. Population estimates from Person et al. (1996), ADFG (2017), ADFG (2018), ADFG (2019), and Roffler et al. (2019). This figure shows mean autumn population estimates and does not depict the confidence intervals for these estimates.



[207] *Id.* (emphasis added)(internal citations omitted).

[208] Exh. 92 at 149 (Person and Brinkman 2013).

[209] Exh. 70 (CBD et al 2020).

[210] *Id.*

(Chart source [211])

In 2019, ADF&G abandoned trapping limits and simply set a population objective of 150-200 wolves.[212] While hunting and trapping has always had a factor in the population decline, trappers took an unprecedented number of wolves -165 – during the 2019-2020 season out of an estimated population of 170 wolves.[213] The DEIS must address the implications these takings and the new ADF&G trapping "limits." The 2020 mortality of 165 wolves was the highest ever, more than doubling the 77 wolves taken in 2004.[214] ADF&G does not plan to implement a limit for the 2020-2021 season.[215] This action is inconsistent with the Wolf Habitat Management Program developed in 2017 which, while wholly inadequate, still had components that included limits, monitoring and enforcement as management tools.[216]

Even prior to the 2019/2020 trapping season, suppression of the Prince of Wales island wolf population to a very low level has been a critical concern. The combination of lower deer populations and heavily roaded areas in close proximity to population centers can creates scenarios incentivizing and facilitating unsustainable harvests of wolves through pack depletion. The DEIS needs to provide sufficient site-specific discussion of baseline information about project area wolves where they still persist, adverse impacts to them and their prey to meet the Forest Service's analytical responsibilities under NEPA and satisfy the wildlife viability provisions under NFMA and the Forest Plan.

The DEIS needs to assess impacts with more than mere quantifications of deer densities and road densities. Road density increases contribute to the population decline by causing increased trapping and hunting rates. When total road density exceeds .49 mi/mi2, trapping and hunting increase sharply. It doubles at .66 mi/mi2, triples at 1.19 mi/mi 2 and quadruples at 1.63 mi/mi 2.[217] Additionally, because deer hunters frequently shoot wolves opportunistically, wolves avoid high quality deer habitat during fall deer hunting season where there are high road densities.[218] There is a need to identify areas with existing levels of wolf take or quantifiable criteria for unsustainable take levels that may result major impacts to remaining animals or packs. Also, because "[w]olf populations are closely tied to populations of deer," declines in deer populations will cause declines in wolf populations. [219] The DEIS needs to consider heightened protective measures for deer, including protection of all winter deer habitat, facing any direction, protection of SD-67 large tree forests where available, and lower quality habitats where there is a deficit of larger trees.

Finally, the DEIS also needs to review scientific materials indicating inadequacies with the Forest Plan den buffers which are essential to population viability and reproductive success but currently far too small to encompass areas needed for breeding and rearing pups. The production and/or survival of any pups remaining on the island will be vital to preventing complete extinction of the species from the island.

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[211] *Id.*

[212] *Id.*

[213] *Id.*; Exh. 71 (AWA 2020); Exh. 72 (DWC 3.5.20)

[214] Exh. 70 (CBD et al 2020)

[215] *Id.*

[216] *Id.*

[217] *Id.*

[218] *Id.*

[219] Exh. 95. Declaration of Dr. Dave Person ¶23.

 [220]

D. Black bear populations are also likely declining, warranting additional protective measures

Prince of Wales Island historically had some of the best black bear habitat in Southeast Alaska because its abundant and productive salmon streams, large estuaries and topography were conducive to supporting large numbers of bears.[221] Wildlife managers also believe that the presence of large-tree old-growth had significant value to black bears as the most used habitat type in all seasons. But there are current concerns that the population, like so many other wildlife species on the island, is declining. The DEIS should investigate any new and serious population vulnerabilities, such as declining pink salmon returns, as well as well known problems, such as cumulatively lost foraging habitat due to the extensive rate of past timber extraction in project area fish-bearing watersheds.

Local wildlife managers identify logging as "the most serious threat to black bear habitat" on Prince of Wales Island.[222] There are indications of recent population reductions which likely reflect succession debt for bears - "effects of reduced carrying capacity … as extensive tracts of clearcuts grow into sterile, stem-excluded second growth forests."[223]

Indeed, across the island extraction of black bear habitat is as dramatic as for any species, with less than half of the original habitat value remaining for black bears.[224] Black bear habitat losses include roughly 475 square miles of forested black bear habitat and the highest road density in southeast Alaska. . Once canopy closure occurs, black bears will lose habitat diversity and denning structures, and become increasingly vulnerable to taking because of logging roads. For these reasons, wildlife managers project long-term declines:

> "The long term effects of extensive clearcut logging will be detrimental to black bear populations in this unit {POW]. We may very well have reached the peak of

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[220] Photo credit: Person & Larson 2013. Developing a method to estimate abundance of wolves.

[221] Exh. 131. (Bethune, S. 2014.)

[222] *Id.*

[223] *Id.*

[224] Exh. 67 Schoen et al 2007a.

> bear suitability in Unit 2 as most of the area previously clearcut are now reaching the closed canopy stage of forest succession. Several proposed large federal timber sales along with some state timber offerings will further reduce long term bear carrying capacity."[225]

The agency's responsibility to maintain foraging, denning and other habitat needs for bear populations in the project area is of considerable socio-economic significance. Alaska's wildlife has tremendous economic value for both passive and consumptive uses, and inventoried roadless areas must remain intact to prevent further losses of this asset. Bears are a top species for wildlife viewing visitors in Alaska and generate millions of dollars in regional economic impacts. In 2011, wildlife hunting and viewing in general generated 2,463 jobs in southeast Alaska, $138 million in labor income and $360 million in total economic output.[226] More recent studies show that bear viewing generates massive economic impacts in southcentral Alaska and British Columbia's.[227] Visitors to Alaska and coastal rainforests in British Columbia identify bear viewing opportunities as a primary reason for their visits.[228]

The DEIS should include a meaningful discussion of abundance trends, disclose the cumulative effects of future losses of black bear summer habitat during times of reduced pink salmon abundance, and explain how the Forest Service will maintain adequate denning habitat and address other impacts of human caused disturbances to bears. For example, scientists have also found that a reduction in *suitable* den sites can lead to decreased black bear populations.[229]

Black bear populations respond negatively to high road density and need habitat that provides remoteness from human activity.[230] Loss of riparian habitat has disproportionate and non-linear displacement effects on female bears. The DEIS should thus consider, for example, whether it is appropriate to rely on 100 foot buffers on class I streams to reduce impacts to black bears using high value habitats like low-elevation, old-growth with abundant, productive salmon streams. The Forest Service should consider significantly larger riparian buffers on all streams to provide additional protections to project area black bears.

Also, average male skull size of black bears in areas of southeast Alaska with current data are declining for unknown reasons.[231] The Forest Service should consult with ADF&G and discuss this trend in the DEIS.

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[225] Exh. 131. (Bethune, S. 2014.)

[226] Exh. 77 EcoNorthwest 2014.

[227] Exh. 93. Young, T.B. & J.M. Little. 2019. The economic contribution of bear viewing in south central Alaska. University of Alaska Fairbanks. Exh. 94. Center for Responsible Travel. 2014. Economic impact of bear viewing and bear hunting in the Great Bear Rainforest of British Columbia. Washington, D.C.

[228] *Id.;* Exh. 77 EcoNorthwest 2014.

[229] Exh. 132 Young, T.B. & J.M. Little. 2019. Longevity and Reuse of Black Bear Dens in Managed Forests of Coastal British Columbia. In: Journal of Wildlife Management 76(3):523-527.

[230] *Roadless FEIS* at 3-144, 148-149.

[231] Exh. 135. Lowell, R. 2013. Unit 3 black bear management report. Chapter 6, Pages 6-1 through 6-26 in P. Harper and L.A. McCarthy, editors. Black bear management report of survey and inventory activities. 1 July 2010-30 June 2013. Alaska Department of Fish and Game. Juneau, Alaska.

VIII. Conclusion

For the above reasons, we request that you cease planning on this misguided project.