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• Cascadia Wildlands • Greenpeace • The Boat Company •
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Re: Wrangell Island Project EIS, comments

Mr. Dalrymple:

We submit these comments on behalf of Greenpeace, Cascadia Wildlands ("Cascadia"), the Greater Southeast Alaska Conservation Community (*GSACC*), Center for Biological Diversity (the "Center") and The Boat Company regarding the Wrangell Island Project DEIS. The proposed action would remove 65 million board feet (MMBF) of timber from an island

ecosystem that the Forest Service had previously concluded was sufficiently degraded that it could not withstand another round of intensive timber removals without substantial risk to other island resources. The undersigned organizations have members who use the Tongass National Forest, including the project area, for recreation, commercial fisheries, subsistence, wildlife viewing and other activities. Greenpeace and the Center submitted scoping comments in response to the initial scoping period in January 2011, Greenpeace, Cascadia, the Center and GSACC submitted comments on September 16, 2013, and Greenpeace, Cascadia, the Center and GSACC submitted scoping comments during a third scoping period on November 27, 2015. We have consistently urged the Forest Service to cease planning on a project of this scale and reiterate that you should rescind planning on this project.

Concerning past and present exhibits:

During each of those three scoping periods we submitted exhibits with our comments. To avoid confusion with the earlier exhibit numbers, the exhibits provided with our comments on the DEIS are numbered in the form of *D-nn*, with *D* meaning related to DEIS comments and *nn* being the exhibit number. A list of the exhibits we are submitting with these comments is provided in Appendix B.

Exhibits submitted with the 2013 and 2015 comments were different, even though both numbering sequences began with a "1". The 2011 exhibits were not numbered. In Appendix D we provide a table with one column for each of those three set of exhibits, briefly indentifying each document and showing its exhibit number (or for the originally unnumbered 2011 set, a proforma sequence number). The table uses blue text for some added notes *and bold text to identifies exhibits we submitted for the first scoping,*[1] *but which are absent from the project record*. These documents are missing despite them having been sent twice! The circumstances are:

1) The 2011 scoping comments were sent on 1/26/11, and the accompanying DVD of exhibits was mailed on 1/31/11. [Packing list in Exh. D-02].
2) On October 30, 2012 the WIP project IDT leader contacted Greenpeace to request that the exhibits be submitted a second time, because the first submission was lost when the contract for the WIP NEPA work was terminated. [Exh. D-64 (Piazza corresp.)].[2]
3) The replacement exhibits were mailed the same day and was received in good condition. [Id.].
4) The submitted documents listed in the 2011 column of the table in Appendix D , are not in the planning record index we received during the present DEIS review period.
5) Also, the October 2012 mailing included additional DVDs with more videos than had been provided previously of the 2006 Tongass Conservation Strategy Review Workshop science panels, and the Powerpoint presentations. These are identified in a list in Appendix D.

We ask the planning record be made whole with respect to the materials we have submitted, by including all of them that we have submitted previously and currently and listing each individually in the record index. Some of the missing exhibits are cited again below, and have been assigned D-series exhibit numbers. The remainder of the missing exhibits are in a zip archive being submitted as Exh. D-01, and a list of those resubmissions are listed in Appendix C.

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[1] The comments were jointly by Tongass Conservation Society (TCS) and Greenpeace.

[2] DVD transmittal letter and prior and subsequent email correspondence.

Concerning our 2015 scoping comments, missing in the planning record

We timely submitted comments for the project's fourth scoping period on November 27, 2015 by email to you, and followed-up on November 30 by submitting to you by email an errata both as a complete replacement document and as a single corrective page. [Exhs. D-14 through D-17]. Despite an exhaustive search of the planning record index we are unable to locate any of these documents, even though the email address we used is correct. Oddly, all of the exhibits we submitted on a postal-mailed DVD to accompany those comments are in the planning record. [See 3rd column of the table in Appendix D]. It is a shame that our 2015 comments are not in the record, have not been available to other parties who may have reviewed the record in preparing comments on the DEIS,[3] and we suppose were not considered during preparation of the DEIS.

The absence of our comments in the record is deeply troubling, especially in view of the fact that many of the exhbits that we submitted for the record – twice, in 2011 and 2012 – are also missing from the record, as discussed above. In a 2005 Forest Service briefing for an IDT, the final slide of the segment concerning planning records ended said simply: "Final Word — If it's not in the planning record, it didn't happen." [Exh. D-80 (USFS 2005)].[4] We hope the Forest Service is not trying to use that fact here, to the advantage of advancing its proposed action.

A planning record typographic error

We note that our 2015 Exhibit 15 is hyperlinked to the wrong file (634_0834) in column C of the record index, although column G of this record is correct (linking to 634_0833). Note that the similar record for our Exhibit 14 is correct.

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[3] We did not discover the absence of our comments until the night before these comments were due; therefore no remedy for this was available.

[4] This is a powerpoint by Dennis Sylvia (USFS) titled "Soda Nick Project IDT Meeting, 10 March 2005, Craig Ranger District," obtained from the planning record of that project.

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I. Introduction

As noted in a 1998 Wrangell Island Analysis Report (R10-MB-371) for future timber development, by the end of the 1990s, "much of the 'easy' ground has already been harvested." This means that remaining timber areas on the island occur near scenically sensitive travel routes, highly sensitive watersheds, wildlife travel corridors and other habitat, and potential OGR additions needed to address shortcomings in existing OGRs. [634_0767 at 49].[5] In the 1998 analysis, Forest Service personnel planned the extraction of up to 25–30 MMBF of timber from Wrangell Island, mostly through small sales and one large sale of 15 MMBF, with an increased emphasis on reducing the amount of clearcuts. [*Id.*] Planners believed that this was the *maximum amount* of timber extraction that could occur without further impacting the most sensitive watersheds, high quality old growth habitats and wildlife corridors on the island. [*Id.*] Even so, planners recognized that it would be impossible to fully mitigate wildlife concerns given the condition of the landscape. [*Id.*]. In several of the affected areas, nearly half of the amount of harvestable old-growth on National Forest land had already been cut, and road densities typically exceeded 1 mi/mi^2. [*See id.* at 15-30 (raising concerns about additional harvest in VCUs in the north and central parts of the island due to cumulative effects on wildlife habitat and fisheries)]. The analysis found that there was little or no high-value winter deer range habitat remaining, and that moderate value deer winter habitat had already been logged or fragmented by past logging. [*Id.* at 61]. And now, in 2016, much of the logging planned in 1998 has been completed.

Nevertheless, the Tongass National Forest's current Proposed Action is planning to remove another 65 MMBF from 5,309 acres of public land, and construct an additional 32 miles of temporary and National Forest System road. [DEIS at 4-5]. The proposed action and other action alternatives would all take more than 40 MMBF, and are therefore unreasonable. We thus request that at a minimum you consider fundamentally downsizing the timber sale volume or preferably cancel any further planning on the timber sale component of this project. Most of the projects contemplated in 1998 have been implemented, leaving even less to work with, and creating unacceptable environmental risks. Further, the proposed volume does not reflect a reasonable assessment of current and potential demand for timber from the project area. We would prefer to review a micro-sale or small sale project that responds to the needs of the one-and-only small-scale processor in the area. Instead, this project continues the Obama administration's increasing trend of managing the Tongass National Forest as a subsidized timber colony for Pacific Rim wood processors far outside the region.

A. The Timber Volume Purpose and Need is overly narrow and based on poor quality or missing socio-economic analysis

The project's purpose and need statement aims primarily at timber industry goals and objectives, and also cites local and regional objectives aimed at providing for resource uses that contribute to the local and regional economies including a wide range of natural resource-based employment opportunities. [DEIS at 4]. The purpose and need for the Wrangell Island Project reflect an overly narrow focus on perceived timber industry needs without any analysis of the existing status of the industry, particularly in Wrangell and adjacent communities. In general, the Forest Service's large timber sale program aims exclusively and narrowly at supplying two timber operators that export most of their timber as unprocessed logs. Two timber sale purchasers in southeast Alaska – Alcan Forest

[5] Forest Service, Alaska Region. 1998. Wrangell Island Analysis Report. U.S. Department of Agriculture, Forest Service, Stikine Area. 1998.

Products LLP in Ketchikan (Alcan) and Viking Lumber Company (Viking) in Craig – are the primary purchasers of federal timber. [2015 LRMP DEIS at 3-454]. Alcan is a timber broker and does not harvest or process federal timber in southeast Alaska. [*Id.;* Exh. D-24 at 2 (D. Alaska 2013)]. Both entities, particularly Viking Lumber, may cease operations in the near future, raising serious questions about further planning on a project of this scale. [Exh. D-73 (SitNews 2016);[6] D-47__ (KRBD 2016)].[7] Further, given the extremely poor quality of the remaining timber on the island from an economic perspective, this project will not provide a life raft to Viking's mill operation at a projected domestic processing value of *negative* $218.66 per MBF, amounting to a project-level loss of $1.4 million for a company already on the verge of shutting its doors. [DEIS at 66, Table 12].

Even if the government could somehow preserve Viking's mill through this project, the Forest Service cannot allow the needs of private entities to narrowly define the scope of a proposed project. [*National Parks Conservation Ass'n v. Bureau of Land Management,* 606 F.3d 1058, 1070 (9th Cir. 2010)]. Instead, federal agencies must look to other relevant factors, including the views of Congress as expressed in the agency's statutory authority and other congressional objectives. [*Id.* citing *Citizens Against Burlington, Inc. v. Busey,* 938 F.2d 190, 196 (D.C. Cir. 1991)]. In enacting NFMA, Congress indicated that timber production was not to be a sole objective of management planning. [S. Rep. 94-893, reprinted in 1976 U.S.C.C.A.N. 6662, 6671]. NFMA thus requires that forest plans provide for multiple uses, including recreation, watershed, wildlife and fish. [16 U.S.C. § 1604(e)]. Similarly, in enacting ANILCA, Congress intended to "provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so." [16 U.S.C. § 3101(c)]. Finally, with reference to at-risk populations of wolves and goshawks, Congress determined that depleted fish and wildlife species "are of esthetic, ecological, educational, historical, recreational and scientific value to the Nation and its people." [16 U.S.C. § 1531(a)(3)].

The timber industry in southeast Alaska is very small. There have been no new sawmills established since 2000 and the overall number of sawmills declined by half, to ten active operations since 2000. [2015 LRMP DEIS at 3-451]. Nine of the ten sawmills essentially comprise a very small cottage industry and processed a total of 2.6 MMBF in 2013. [*Id.*, Table 3.22-6]. The largest sawmill, Viking Lumber Company, processed 11.5 MMBF of federal timber in 2013. [*Id.*; 2015 LRMP DEIS PR 769_05_000336 at 6, 8 (Parrent 2014)]. Viking marginally processed over twenty percent of its timber. [*Id.* (3.5 MMBF sawn into cants)]. Viking employs a mere 34 mill workers. [*Id.* at 4].

Viking Lumber Company and the one other major purchaser of federal timber, Alcan, rely primarily on raw log exports. In 2007, the Regional Forester developed a limited interstate shipment policy that it expanded in 2009 to allow timber sale purchasers to export 50 percent of total Sitka spruce and western hemlock sawlog volume. [DEIS at 3-453-454]. Thus, the stated purpose and need for the project – timber volume for these two entities – primarily benefits corporations outside the region rather than the southeast Alaska economy, while residents of the region are left with very consequential resource damage and environmental impacts. It is unreasonable and arbitrary to focus the Wrangell Island Project purpose and need on satisfying the perceived needs of two distant timber exporters, and the expense of social, economic and ecological sustainability.

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[6] Title: Mid-sized sawmills face possible closures. SitNews, 3/30/16.

[7] Title: Southeast's largest lumber mill may close. KRBD, 4/7/16.

1. The DEIS does not show how the timber sale program will meet regional employment goals

The DEIS does not adequately show how the emphasis on maintaining Viking's and Alcan's access to federal timber is related to the goal of providing jobs for southeast Alaska residents. First, 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 2015 LRMP Amendment DEIS makes clear that the Forest Service intends to authorize the export of roughly two-thirds of the timber removed from federal forests as unprocessed logs. [2015 LRMP DEIS at 3-456-457, Tables 3.22-8, 3.22-9]. In general, Alcan and Viking have exported nearly all the cedar and half the hemlock and spruce sawlogs as unprocessed raw logs since the Alaska Region developed and subsequently liberalized its export policy. Indeed, between 2008 and 2009 the ratio of federally supported mill jobs per MMBF of federal timber dropped to nearly one-half. [*See id.* at 3-449-3-450, Tables 3.22-4, 3.22-5, 3.22-6]. Overall, the 2015 LRMP DEIS shows 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. [*Id.*]. The job transfer to foreign timber processors may be worse under this project, but the DEIS never considers this issue – which should be critical to ascertaining to what degree the Wrangell Island Project would meet even the very narrow need it declares, of supplying a forest products industry that provides jobs for southeast Alaska residents.

Also, the DEIS never evaluates the levels of local employment in logging, which raises further questions about whether the Wrangell Island Project would meaningfully support jobs for southeast Alaska residents. The Forest Service acknowledges that non-resident employment accounts for a significant amount of jobs in southeast Alaska's resource-dependent sectors. [2015 LRMP DEIS at 3-447]. The number of actual timber workers is so small that reports by the Alaska Department of Labor lump logging jobs with other natural resource-based job categories, such as fishing, mining and agriculture. [2015 LRMP DEIS PR 769_05_000344; -000314; -000318; - 000319]. The LRMP Amendment planning record shows that overall, workers from areas other than southeast Alaska comprise a significant proportion of the natural resource-based work force, and nearly half of the timber related jobs in southeast Alaska are held by non-residents. [PR 769_05_000329 at 16-18, 22 (ADOL 2015)]. Since the 2008 TLMP Amendment, federal timber has supported 110 jobs per year. [DEIS at 3-449, Table 3.22-4]. Are half of those jobs then actually held by reality TV show "Axe Men" from Oregon? The Wrangell Island Project DEIS never considers or answers these questions, making it impossible to evaluate whether the project's timber volume goals align in any way with its regional employment rationale.

2. The DEIS does not show how the agency's timber volume goals relate to the significant changes in the local and regional economy

The DEIS restates 2008 TLMP timber goals and objectives as the primary purpose and need for the project, and then, without any analysis of the local and regional economy, adds one local and regional economic goal and one local and regional economic objective from the 2008 TLMP. [DEIS at 4]. Nowhere in the analysis is there any explanation of how these goals and objectives pertain to Wrangell Island or adjacent islands, where there is no large timber exporter, no active logging company, and one small mill that could operate for centuries with the volume authorized under action alternatives. In other words, after eliminating the vague goals and objectives from the 2008 TLMP, the *entire* reason for the Wrangell Island Project boils down to providing a large volume of timber to distant timber exporters. This *actual purpose* is overly narrow.

The Forest Service needs to reconcile this inconsistency and then develop and re-scope a revised purpose and need statement that more broadly addresses the region's socio-economic needs. 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." [*Sierra Club v. Peterson,* 185 F.3d 349, 353-54 (5th Cir. 1999)(*superseded* on other grounds, 228 F.3d 559 (5th Cir. 2000)]. 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. [S. Rep. 94-893, *reprinted in* 1976 U.S.C.C.A.N. 6662, 6671]. NFMA thus requires that forest plans provide for multiple uses, including recreation, watersheds, wildlife and fish. [16 U.S.C. § 1604(e)]. TLMP goals and objectives implementing this mandate thus seek to "[p]rovide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska" and "[s]upport a wide range of natural resource employment opportunities within Southeast Alaska's communities." [LRMP at 2-3].

The DEIS fails to consider how the purpose and need for the Wrangell Island Project aim solely at supporting a marginal component of the regional economy. It instead treats various and significantly different economic sectors as equal, and asserts that communities of Southeast Alaska depend on the Tongass National Forest in various ways "to provide natural resources associated with fishing, timber, mining and tourism for employment." [DEIS at 63].

First, the timber industry is a marginal component of the regional economy. Over the past decade, timber employment has decreased by nearly 90%, and the industry is smaller than it was over a century ago. [2015 LRMP DEIS PR 769_05_000340 at 10 (Southeast Conference 2014)]. Timber removals in southeast Alaska overall at best provide 1% of total regional employment and 3% of total resource-based employment in the region. [2015 LRMP DEIS at 3-445, Table 3.22-3]. Timber worker earnings are less than 1% of total employment related earnings in the region. [2015 LRMP DEIS PR 769_05_000340 at 3 (Southeast Conference 2014)]. The significance of these jobs relative to the overall economy is even smaller because employment data do not include the thousands of workers who are self-employed in the commercial fishing industry. [*Id.* at 4, 6]. In reality, federal timber is now responsible for a small fraction of a percent of regional employment, and even the industry's employment from timber on all lands is only 0.7% of regional employment. [Exh. D-70 at 6 (SE Conference 2016)].[8]

Conversely, economic activity associated with ecosystem values, particularly values associated with wildlife, have a substantial positive impact on the regional economy. Wildlife are much more important to the economy than Alcan and Viking's clearcuts. 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. [Exh. D-27 at 24 (EcoNorthwest 2014)]. In contrast to the failed timber program, federal programs that support recreation can make positive contributions toward enhancing the visitor economy. According to a recent peer-reviewed analysis, the National Park Service returns $10 in direct visitor spending for every $1 invested. [Exh. D-79 (Thomas et al. 2014)]. This return is 2000 times as high as the ½¢ per dollar return from the timber sale program. Alaska ranks third in the nation in spending and job support, with visitors to national parks spending $1.06 billion and supporting 16,181 jobs. [*Id.*]. The program supports 400 private businesses. [*Id.*]. Further, the record

[8] Total timber industry employment was 328 and regional employment was 45,694 for 2013-2014, with self-employment included in both numbers. The report is "Southeast Alaska 2020 Economic Plan," May 2016, prepared by Rain Coast Data for the Southeast Conference.

shows that overall, the visitor industry impact in southeast Alaska is massive and dwarfs the timber industry by an order of magnitude, with average visitor industry spending in excess of $1 billion per year, providing between 10,200 and 10,900 jobs, with labor income impacts ranging from $370 million to $407 million. [2015 LRMP DEIS PR 765_05_000334 at 8 (McDowell Group 2015].

The other major private sector employer, commercial fishing, generated $219 million in ex-vessel value alone (meaning direct fishing revenue exclusive of processing jobs and other economic outputs) in 2013. Lands managed by the Forest Service provide slightly more than half of southeast Alaska's salmon catch. [Exh. D-01 at 11 (Alexander 2011)]. Salmon hatcheries provide an additional 22 percent of the statewide salmon value, and are the largest agricultural industry in Alaska, providing hundreds of jobs. [*Id.* at 13]. Thus, the record shows that commercial fishing, the visitor industry and the maritime sector are the "bright points in our economy." [2015 LRMP DEIS PR 769_05_000340 at 1 (Southeast Conference 2014)]. These sectors have contributed to an overall growth in employment, population and wages following a market-based recovery from past dependence on the timber industry. [*Id.* at 2-3]. Overall, both employment and income have increased in the region since 2000. [2015 LRMP DEIS at 3-442].

Even areas formerly dependent on timber, like the Prince of Wales Island area or Wrangell, have recovered from their historical dependence on federal timber. Over the past decade, the Prince of Wales Island area has redefined its economy around small proprietorships in specialty wood mills, fishing and seafood and hospitality businesses. [Exh. D-72 (SitNews 2012;[9] 634_0835 (Economic Trends 2012)]. Population levels have rebounded over the past five years. (*Id.)* Nature-based tourism generated more than $30 million in gross revenues to Prince of Wales Island in 2007 – mostly from sport fishing. [Exh. D-82 (Big Thorne FEIS at 3-454)]. There were population increases throughout the region including in Ketchikan and Wrangell and nearly all Prince of Wales Island communities from 2010 – 2013. [LRMP DEIS PR 769_05_000340 at 5 (Southeast Conference 2014)]. Wrangell also has experienced a market-based transition that includes increased participation in fisheries and the development of a maritime service sector that is an economic development model in the region. [634_0799 (SitNews 2013); Exh. D-71 (Sitka Sentinel 2013);[10] 634_0825 (UFA 2014)].[11]

Given these changes, many of them subsequent to the 2008 Amendment, the perceived need to develop this project around the perceived needs of two timber operators was clearly overly narrow, and requires a re-assessment of the need for the project to account for changed conditions and circumstances.

3. The purpose and need is too narrow and precludes measures to improve the local and regional economy by ameliorating past damage to watersheds and recreation enhancement projects

The scoping process had previously indicated that the Forest Service would consider some level of road maintenance and improvements, invasive species treatments, erosion control and fish passage improvements as part of this project. [80 Fed. Reg. at 65691]. We would like to see the Forest Service implement a project that emphasizes fisheries habitat remediation projects on Wrangell Island with an emphasis on repair or removal of barrier

[9] Title: Prince of Wales Area redefines its economy after the timber decline. 8/1/12.

[10] Title: SE Economy Bounces Back, Conference Told. 3/30/13.

[11] Title: Wrangell, Alaska: Commercial Fishing and Seafood Processing Facts.

culverts and/or road decommissioning. But efforts to ameliorate degraded habitat conditions will be undermined if they occur in conjunction with a proposed action that would take 65 million board feet of timber (MMBF). The proposed action compounds the negative environmental impacts from further timber removals by authorizing the construction or reconstruction of another 32 miles of road. [*Id.*]. Thus, our November 2015 scoping comments, requested that you consider fisheries impacts a significant issue in light of Wrangell's market-based transition toward a fisheries economy and the significant risks to fisheries resources implicated by this project. An alternative or mitigation measure should be developed that addresses fish passage concerns. But the DEIS arbitrarily determined that cleaning up the mess left by the timber industry on public lands was "beyond the scope of the project." [DEIS at 6].[12] It thus arbitrarily dismisses any efforts to improve habitat in ways that would actually realize socio-economic benefits such as red pipe replacements and recreational enhancement projects. These projects would better meet local and regional economic objectives, and any further planning on this project must include a purpose and need broad enough to benefit the larger region rather than two private corporations.

4. The proposed action fails to meet the identified, timber-industry-intensive purpose and need

The record is clear from the timber industry and local government that, in order to fil the perceived need for a long-term sale, the volume offered would need to be no less than 150 mmbf of economical timber. [*See e.g.* June 20, 2012 IDT notes; 2011 AFA comments; Wrangell Borough comments]. The rationale for that large offering of timber volume was that it might entice investors to build a new mill on Wrangell Island. [*See e.g.* DEIS at 9 (noting "interest" in converting old mill site for a new mill)]. Comments were clear and consistent from timber industry boosters that a sale smaller than 150 mmbf would be worse than a waste of time. In light of that, there is no identified need for a 50 mmbf sale on Wrangell Island. [*See* 2011 AFA comments ("…piecemeal approach will not provide the incentive for operators to invest in Alaska…"). Furthermore, offering a sale of this size and volume would fail to meet the purpose and need of spurring timber industry investment to support the local economy. In reality the proposed action seems to represent the worst of all worlds, degrading wildlife and wildland values treasured by members of our environmental organizations, burdening the agency with work that it cannot afford to do, and stringing the dying old-growth industry along as an export-driven operation that does nothing for local economic opportunity or stability.

The prospect of new investment in a mill on Wrangell is not reasonably foreseeable, so it is a mistake to design a sale to seek to meet that imagined (future) market demand for timber. The approach taken in the DEIS fails to take a hard look at the actual economic condition of the industry and mills on Wrangell because of this erroneous assumption. The DEIS does disclose that there have been no proposals for such development. Under ordinary

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[12] The "stewardship opportunities" identified in the DEIS are "beyond the scope of the project" only by deliberate choice. The agency could have adopted proposed stewardship opportunities as part of the proposed action, or incorporated stewardship opportunities into one or more of the project alternatives. Indeed, where the identified goals and objectives of the forest plan that apply to this project include "provid[ing] a diversity of opportunities for resource uses" and "suppor[ting] a wide range of natural resource employment opportunities," stewardship opportunities are plainly *not* "beyond the scope" of this project.

NEPA principles such a vague hope without even a proposal is not reasonably foreseeable, and it is not wise to plan this project as though it were.

a. Small Mills Alternative should have been considered

Please take a hard look at a small mills and wildlife alternative. It is particularly disappointing that the DEIS did not analyze a small mill & wildlife alternative, as was developed and urged by the SEACC. [*See* SEACC 7/25/2011 comment letter with attachments]. Under SEACC's analysis there is a need for a combined 2 mmbf/ year of economical timber along the road system to feed the two small mills on Wrangell. The DEIS fails entirely to consider this reasonable alternative. The proposed action does not even entertain the possibility of offering the proposed volume in a series of smaller sales directed at local mills.

Similarly, the DEIS fails to analyze the impacts of the proposed action on opportunities for such a "small mills" alternative in the future. A 2009 collaborative effort found about 30 mmbf of economical timber left on the island. The proposed action would log essentially all of that, leaving nothing for small operators in future decades. It remains an open question to us whether even 2 mmbf/year is appropriate or sustainable on Wrangell Island without the proposed large sale. After the proposed action, the opportunity will surely be gone.

5. The Project's purpose and need is erroneously supported by a "transition" that has not started.

A primary justification for the Wrangell Island Project, as indicated by the purpose and need section, is to help facilitate a transition to a young-growth-based timber program over the next 10 to 15 years. The DEIS repeatedly, in the purpose and need section and throughout the document, refers to the project as a "bridge timber project." *See, e.g.*, DEIS at 2 ("Therefore, an underlying need exists for a reliable economic supply of sawtimber for Southeast Alaska mills to help support the timber industry and employment through the transition years until the industry can switch to a stable supply of young growth."); *id.* at 65 ("This project contains a supply of old-growth 'bridge' timber that could support local jobs and facilitate the industry transition to a sustainable wood product industry based on young-growth management on the Forest and throughout Southeast Alaska."). The EIS however does not explain how this proposal might achieve that. We have not seen any evidence suggesting that *additional* old-growth logging will cause an acceleration of second-growth logging, or an end to old-growth logging. The DEIS makes stated and un-stated assumptions related to the transition. It is assumed that mills will re-tool to process small diameter logs, that sustaining old-growth logging in the interim will speed that process along. [*see* DEIS at 2 – 3]. Public statements by the one remaining mid-sized mill operator in Southeast, Viking lumber, suggest that they have no intention of re-tooling into a second-growth operation. Our recent reconnaissance of the Big Thorne sale on Prince of Wales Island, for example, found them targeting old-growth stands and cedar, not the commercial thinning units that are also included in that sale.

An important thing the purpose and need section fails to disclose is that the "transition" has not yet begun. It has not been approved, has not been reduced to a final plan, and has not been shown to be implementable. Outside of a few vague sentences, the DEIS does not describe any details about the "transition" or how the Wrangell Island Project *specifically* helps facilitate the transition. The "need" for the Wrangell Island Project to support a nebulous "transition" is therefore arbitrary.

The purpose and need section of the FEIS must omit any reference to a Tongass "transition." It is illogical to support this *current* project by reference a *future* strategy; the

Wrangell Island Project cannot be "part" of a transition strategy that does not presently exist. To the extent that the purpose and need for the Wrangell Island Project is tied to the need to supply bridge timber for a "transition," the FEIS must present detail about the contours of the "transition," and articulate how the Wrangell Island Project specifically fits within the transition framework.

6. Last-minute changes to the project confound the systematic, inter-disciplinary process

The project record discloses that the original project plan was scrapped in early 2015 at the direction of the Forest Supervisor. [*See* AR 634_0091_2015_05_06… (May 6, 2015 IDT notes)]. Please provide an explanation for this change, including a clear identification of where that decision was made, and on what rationale it was based. The sole reason seems to have been that the agency had failed to do the required analysis to warrant the Forest Plan modifications, and so is seeking to avoid losing a lawsuit. The approach chosen by the Supervisor thus prioritizes legal compliance as though that were an end in and of itself, and does so at the expense of doing the hard work necessary to analyze and design projects that work for both industry and conservation. The last-minute changes seem to have thrown the analysis in chaos, breeding confusion in the IDT and introducing huge potential for analysis error. The May 20, 2015 Briefing Paper for example discloses some disturbing aspects of the change. Alternative 5, the closest thing to a 'conservation' alternative, somehow *gained* 300 acres. The team, sensibly, wondered what the point of Alternative 3 was, absent the Forest Plan changes. The June 20, 2012 IDT notes reflect that the team was then exploring a sale that included <u>all</u> available timber volume on the island, made available at a certain rate over time. The aquatics resource report references apparently old versions of the alternatives (e.g. Alt 2 is 73 mmbf). With different experts making radically different assumptions at different periods of time the inter-disciplinary process loses its *systematic* character. Rather than being directed to do their jobs within their areas of expertise, the IDT members are transformed into pawns whose analysis is used after-the-fact to justify whatever decision the higher-up officials make.

The decision to be made includes an unusual provision related to a five-year review of the project and possible supplemental analysis. [*See* DEIS at 5, citing FSH 1909.15 Ch.18]. Please explain this process and the choice to be made. It is a basic tenet of NEPA that environmental analysis is an ongoing process, and applicable law in this area obviously requires supplemental environmental analysis whenever there are significant changed circumstances or new information.

Please explain the rationale for refusing to consider stewardship projects as part of the proposed action. The public process for this project uncovered a need for a wide variety of specific stewardship projects, from recreation improvements to road maintenance. It is very disappointed to see that those projects were considered "beyond the scope" of this project. Stewardship projects were within the scope of the scoping notice. It appears that the decision was made to limit this project to logging and road expansions *in spite of* the input of public and agency resource experts. It is unclear on review of the project record how or why this decision was made.

7. Conclusion

For the above reasons, we request that you develop a *new* purpose and need statement that is consistent with the agency's multiple use mandate and a realistic analysis of regional socio-economic realities. The failure to address changed socio-economic conditions in a

DEIS that authorizes a continuation of failed federal economic policy for the region is a major flaw.

B. Range of Alternatives

The Forest Service designed five action alternatives. The proposed action provides the largest supply of timber volume for the industry – 65 MMBF from 5,309 acres with 1,781 acres of clearcuts, 3,528 acres of "partial cuts" (by which 33% of the basal area of trees in a unit would be cut), and 32.1 miles of road. [DEIS at 18].[13] Alternative 3 would remove 48.8 MMBF of old growth with 1,483 acres of 33% clearcuts and 1,701 acres of clearcuts and adds 29.9 miles of road. [DEIS at 19]. Alternative 4 would remove 51 MMBF of old growth through 1.738 acres of 33% clearcuts and 1,793 acres of clearcuts. [DEIS at 19]. Alternative 5 purports to respond to wildlife habitat concerns, yet it would remove 42.8 MMBF of old growth with 2,868 acres of 33% clearcuts and 936 acres of clearcuts and add 21.6 miles of road. [DEIS at 20].

The Wrangell Island Project's limited purpose and need, aimed at timber industry objectives, resulted in a failure to meet the NEPA obligation to "[r]igorously explore and objectively evaluate all reasonable alternatives." [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)("Congress created NEPA to protect the environment by requiring that federal agencies carefully weigh environmental considerations and consider potential alternatives to the proposed action before the government launches any major federal action")]. This failure is highlighted by the contrary conclusions the Forest Service reached in its 1998 Wrangell Area Analysis (634_0767), as discussed in an earlier section of these comments.

A "reasonable" range of alternatives includes alternatives "that are practical or feasible" and not just those alternatives preferred by the agency. [Council on Environmental Quality (CEQ), Forty Most Asked Questions, Questions 2A and 2B; 40 C.F.R. §§ 1502.14, 1506.2(d).[14] NEPA requires a discussion of the alternatives "in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public." [40 C.F.R. §§ 1502.14]. 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." [*Westlands Water Dist. V. U.S. Dep't of Interior,* 376 F.3d 853, 872 (9th Cir. 2004)(citations omitted). While an EIS need not include every conceivable alternative, [*Vermont Yankee Nuclear Power Corp. v. NRDC,* 435 U.S. 519, 551 (1978)], "[t]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate." [*Westlands Water Dist.,* 376 F.3d at 868]. The exploration of alternatives to an agency's preferred course of action is critical, because "[w]ithout substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded." [*New Mexico ex rel. Richardson,* 565 F.3d 683, 708 (10th Cir. 2009)(citations omitted)].

The range of alternatives in the DEIS fails these standards. The four action alternatives all drive at the same result – excessive timber volumes with some variation in how and where the timber industry would perform the extractions. The alternatives provide no clear basis for choice and no means for the public to compare and provide comments on alternatives that would accelerate the end of old-growth logging and reduce the overall volume of total

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[13] Partial cutting is meant to reduce negative effects to wildlife and provide visual resource protection.

[14] *available at* http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm;

forest removals relative to the status quo. Thus, the alternatives are not sufficiently distinctive to sharply define the issues and allow for informed decisionmaking.

The DEIS contemplates only four action alternatives. All alternatives involve taking at least 42 MMBF of timber over the next decade primarily from some of the most highly degraded watersheds on the island. [DEIS at 35-41]. The preferred alternative would degrade 5,309 acres of old-growth habitat through clearcuts and 33% clearcuts and emphasizes maximizing timber volume for distant timber exporters. [*Id.* at 18]. Alternatives 4 and 5 seek to address scenic integrity and wildlife habitat, respectively. [DEIS at 19-20], but both propose excessive volumes of 51 and 43 MMBF, meaning that the distinction between the two is only how much scenic value is lost compared to wildlife habitat, or vice versa – a poor choice. Alternative 3 purports to address multiple resource issues, but still would take 48.8 MMBF of timber. [*Id.* at 18-19]. The critical problem is that the alternatives all entail excessive removals of old-growth forest without any consideration for local or regional socio-economic values, and without any assessment or description of potential markets or purchasers for the timber. There is no justification provided for a sale of this size, particularly given the agency's prior findings about the poor condition of the island's landscape. In sum, the DEIS analyzes only alternatives which do have substantially similar consequences, and then improperly excludes alternatives which would generate different results and allow for a more meaningful comparison between different courses of action.

1. A range of alternatives should have meaningful, quantitative distinctions and not be similar and aimed at one end result

The CEQ's "Forty Questions" explains that a range of alternatives should include quantitative differences in how an agency analyzes a proposal:

> For some proposals there may exist a very large or even infinite number of possible reasonable alternatives. For example, a proposal to designate wilderness areas within a National Forest could be said to involve an infinite number of alternatives from 0 to 100 percent of the forest. When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. An appropriate series of alternatives might include dedication of 0, 10, 30, 50, 70, 90 or 100 percent of the Forest to wilderness. What constitutes a reasonable range of alternatives depends on the nature of the proposal and the facts in each case. [CEQ 40 Most Asked Questions, Question 1b].[15]

The Ninth Circuit case law mirrors this statement in identifying a need for alternatives that provide for meaningful quantitative distinctions. In *State of Cal. v. Block,* the Forest Service prepared a programmatic EIS for designating roadless areas and analyzed 8 action alternatives that would allocate roadless acreage between wilderness and non-wilderness designation. [*State of Cal. v. Block,* 690 F.2d 753, 766 (9th Cir. 1982)]. The court concluded that the range of alternatives was unreasonable in large part because the Forest Service limited its consideration of the amount of acreage available for Wilderness designation to no more than 33% of the roadless acreage. [*Id.* at 766-768]. The court explained that:

> … without any explanation, the Final EIS seriously considered only those alternatives that allocate more acreage to Nonwilderness than to Wilderness. Moreover, with the sole exception of Alternative I, Nonwilderness acreage allocations exceed Wilderness allocations by a substantial margin, ranging from five-to-two for Alternative D, to nineteen-to-one for Alternative E. See Table # 1, supra. While nothing in NEPA prohibits the Forest Service from ultimately implementing a proposal that allocates more acreage to Nonwilderness than to Wilderness, it is

[15] https://ceq.doe.gov/nepa/regs/4011/1-10.HTM (last accessed 1.15.2016; question 1b).

troubling that the Forest Service saw fit to consider from the outset only those alternatives leading to that end result. [*Id.* at 768].

Similarly, in *Center for Biological Diversity v. Nat. Highway Traffic Safety Admin.,* the 9th Circuit reviewed a range of alternatives that would regulate vehicle emissions through fuel economy standards. [*Center for Biological Diversity v. Nat. Highway Traffic Safety Admin.,* 538 F.3d 1172, 1218 (9th Cir. 2008)]. The court characterized the alternatives as "hardly different" from the agency's selected alternative and noted that none of the alternatives would achieve anything more than a small decrease (1.8 to 2.6%) from baseline emission levels. [*Id.*]. The court explained that the agency considered "a very narrow range of alternatives" with a minimal range of impacts. [*Id.* at 1218-1219]. All of the alternatives derived from a single study - NHTSA's cost-benefit analysis. [*Id.* at 1218]. The court concluded that NHTSA's excuses for failing to consider more stringent standards that would allow for increased conservation benefits were flawed. [*Id.* at 1219].

Finally, in an analogous Tenth Circuit case, *New Mexico ex rel. Richardson,* the state of New Mexico and a coalition of environmental organization challenged a BLM land management plan amendment that would determine which public lands in the planning area would be open to oil and gas leasing. [*New Mexico ex rel. Richardson,* 565 F.3d 683, 688-689 (10th Cir. 2009). The BLM eliminated alternatives that would have heightened environmental protections relative to the existing plan and considered only two alternatives despite extensive public comment requesting alternatives that would protect environmentally sensitive areas. [*Id.* at 709]. The court noted that there were "powerful" environmental values associated with eliminated alternatives that provided for more significant reductions in lands open to development, and concluded that multiple-use principles required the BLM to include a conservation-oriented alternative in its NEPA process. [*Id.* at 710-11; *see also Muckleshoot Indian Tribe v. U.S. Forest Service,* 177 F.3d 800, 812-813 (9th Cir. 1999)(ruling that the Forest Service "failed to consider an adequate range of alternatives [where t]he EIS considered only a no action alternative along with two virtually identical alternatives")].

Taken together, *New Mexico ex rel. Richardson, Center for Biological Diversity,* and *State of Cal.* all demonstrate that 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. Here, the Forest Service has only considered a group of similar alternatives that will lead to a single result – at least 42 MMBF of timber for Alcan or Viking – all based on a single analysis without consideration of alternatives that would increase and enhance conservation of multiple use resources.

2. Dismissal of lower timber volume alternatives was improper based on the substantive direction provided by NFMA

The DEIS arbitrarily rejected four alternative design options that would reduce the adverse impacts of this project on important resource values: (1) improvements to the OGRs to address wildlife habitat needs; (2) avoiding timber harvest in low-elevation old-growth areas; (3) avoiding timber harvest in heavily degraded watersheds and (4) avoiding no new road construction. [DEIS at 23-24].

The excuses for failing to include these measures were arbitrary. First, the agency insisted that OGR modifications should not occur during the TLMP amendment process without explaining whether or what improvements could or may be made (if any) through that process or acknowledging that the agency can and does routinely modify OGRs as part of project level planning. Second, the DEIS asserts that Alternative addresses low-elevation deer habitat but never proves it – the map of elevational contours does not display the

Alternative 5 units, and it seems clear that, at a minimum, many of the 33% removal units are within or adjacent to areas identified as deep snow habitat. [*Cf.* DEIS at 43, 81]. Moreover, it is unreasonable to characterize the removal of 42 MMBF as mitigating wildlife habitat concerns even if it would result in somewhat less impact relative to the proposed action — this volume is plainly too high given the impacts of past logging. Finally, it is evident that the purpose and need arbitrarily favors the timber industry by over-emphasis on timber volume, while blocking alternatives that would avoid impacts of logging and road construction in the most heavily degraded areas of the island. This ignores the agency's substantive mandates under NFMA.

An agency's NEPA analysis must be informed by the laws driving the action being reviewed. *See Or. Nat. Des. Ass'n v. U.S. BLM,* 625 F.3d 1092, 1109 (9th Cir. 2010). Here, NFMA and its implementing regulations provide the substantive duties with which the agency must comply in amending the Forest Plan. As described above, NFMA requires that forest plans provide for multiple uses, including recreation, watersheds, wildlife, and fish. [16 U.S.C. § 1604(e)]. 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." *Id.* § 1604(g)(3)(B).

Regulations in place at the time the 1997 TLMP was adopted, and when it was amended in 2008, provided that the Forest Service must provide sufficient habitat to support "at least a minimum number of reproductive individuals and that habitat must be well-distributed so that those individuals can interact with others in the planning area." 36 C.F.R. § 219.19. Regulations adopted in 2012 require the agency to determine whether plan components "provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area." 36 C.F.R. § 219.19 (2012).

The Forest Service ignored its substantive duties under NFMA with respect to wildlife and plant populations in developing its narrow set of alternatives. The alternatives proposed by the Forest Service are entirely driven by the selection of timber industry goals set forth in the Secretary's Memorandum, which expresses not the intent of Congress, but the desires of the executive branch. It is the former that carries more weight for the purposes of the NEPA analysis. *See Or. Nat. Des. Ass'n,* 625 F.3d at 1109 (explaining that the considerations made relevant by the substantive statute driving the proposed action must be addressed in the NEPA analysis).

Plainly, plant and wildlife viability are a central purpose of NFMA and its implementing regulations. This should have been a driving feature behind the development of alternatives. [*Cf. id.*] Lower volume alternatives would elevate substantive viability considerations. And it would give the agency the opportunity to effectuate NFMA's mandate to meet multiple use objectives—not just intensive timber harvest. The agency's dismissal of lower volume alternatives on grounds that it did not facilitate the narrow commercial timber harvest goals failed to reconcile the agency's substantive obligations. *See id.* (explaining that the "statutory objectives underlying the agency's action work significantly to define its analytic obligations"); *cf. id.* at 1124 (where BLM in amending management plan considered no alternative that proposed closing more than a fraction of the planning area to ORV use, agency violated NEPA because it "uncriticall[y] privilege[d] one form of use over another").

3. *Conclusion: The Forest Service needs to issue a revised DEIS with downscaled alternatives that address wildlife habitat, fisheries and scenery*

Ultimately, the failure to include lower volume alternatives was necessary to meet NEPA's requirement to "foster informed decision-making and informed public participation." [*California v. Block*, 690 F.2d at 767]. 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. [*See* 42 U.S.C. § 4332]. The alternatives requirement is critical to serving NEPA's primary purposes of ensuring fully informed decisions and providing for meaningful public participation in environmental analyses. [*See* 40 C.F.R. § 1500.1(b), (c)]. By examining both the environmental impacts of the desired path and the impacts of other reasonable alternatives, NEPA enables an agency, and the public it serves, to evaluate whether the government has other options it could take that might be less damaging to the natural environment. [*Headwaters, Inc. v. Bureau of Land Mgmt.*, 914 F.2d 1174, 1180 (9th Cir. 1990); *California v. Block*, 690 F.2d at 767]. Here, the agency's selection of only high volume alternatives deprived the public and the decisionmaker this fundamental exercise required by NEPA. [*California v. Block*, 690 F.2d at 768 ("While nothing in NEPA prohibits the Forest Service from ultimately implementing a proposal that allocates more acreage to Nonwilderness than to Wilderness, it is troubling that the Forest Service saw fit to consider from the outset only those alternatives leading to that end result.")].

C. *The DEIS fails to disclose the impacts from partial cutting, content on the topic notwithstanding*

The Forest Service relies on a large amount of partial cutting for the WIP [DEIS at 66], in an attempt to show mitigation of impacts to scenery [DEIS at 42] and to wildlife and hunters [*e.g.,* DEIS at 104]. Also, the economics of the project are sure to be highly sensitive to the overall timber volume obtained from partial cut units generally, and particularly to the volumes obtained from each species tree. As noted above, the major portion of the logging from the proposed alternative would, on an acreage basis, be accomplished with partial cut logging. This alternative's 3,528 acres of partial cut units are 66% of 5,309 acres of units. In Alternatives 3 through 5, 47% to 75% of the units are partial cut.[16]

By the term "partial cuts"[17] we refer to logging units in which a substantial portion of the timber in a unit will be retained (not cut). In the case of the Wrangell Island Project, the amount of retention in partial cut units will be 67 percent. [*See e.g.,* DEIS at 21, 95, 222, 224 and 234]. However, the DEIS provides four differing, incompatible descriptions of the nature of this retention and how it is measured. According to one view, "one-third *of the stand* would be removed," or secondly and somewhat equivalently that "66 percent *of the old-growth stand structure*" would be retained. [DEIS at 21 (Ch. 2 Wildlife section); and 234 (Ch. 3 Soil section)]. Another view is that the retention would "maintain 67 percent *of the stand volume*." [DEIS at 95 (Ch. 3 Wildlife section)]. The authoritative word is in the Ch. 3 Silviculture section, which says in the partial cut prescription "approximately 67 percent *of the stand's pre-treatment basal area* would be retained … this treatment would remove approximately,

[16] Calculated from Table 12, DEIS at 66.

[17] Partial cutting is also referred to in the DEIS as "UA33" (referring to the proportion of basal removal), uneven aged, or single tree selection (STS).

but no more than 33 percent of the ***basal area***." [DEIS at 220-221 and 222].[18] The DEIS analyses for various wildlife species assume that the impact of partial cutting on their habitats is exactly equal to the prescription's percentage of removal (*e.g.,* the deer modeling assumes that 33% removal equates to clearcutting one-third of the unit). [634_1102 at 99 (WIP wildlife report)].[19]

The problem here is that the proportion of basal area removal (or in the converse, the proportion retained) is not equivalent to a like proportion of the overall timber volume, nor is it representative of the impact on the unit's overall "stand structure" (for which a unit of measure does not exist). Therefore, important analyses in the DEIS are based on fundamental misunderstandings of one of the major features of the project — the high proportion of the unit acreages that are partial cut.

To reach an understanding of how the Forest Service grappled with the basal area versus timber dilemma, Greenpeace staffer Larry Edwards met with the Wrangell District Ranger and the WIP IDT leader in Wrangell on July 11, and had a follow-up phone calls with them and the project's IDT timber specialist on July 15 and 18. [Exh. D-28 (Edwards notes)]. What he learned concerning partial cut units is that:

1) The planning team does not yet known, for any unit, whether the tree removal by the single tree selection method will be by taking a distribution of individual trees across the unit or by taking clusters of trees.

2) It is not yet known, for any unit, what percentage each tree species will comprise the unit's total number of cut trees or total removed timber volume. Edwards pointed out that the representation of this in DEIS Table 12 shows identical percentages by species for each alternative (when calculated). The reply was that the data in the table represent the average species composition on Wrangell Island, not individual alternatives.[20] Species composition of each unit and each alternative will be determined later.[21]

3) The above particulars for application of partial cutting are not known because at this point the basal areas of trees in the units are not yet known, nor is how the one-third basal area to be removed would be allocated across a unit. Further complicating this, some portions of units that would be helicopter-yarded may have no timber removal.[22]

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[18] In all four of these definitions we are troubled by the use of the word "stand." It seems that what is really meant is cutting "unit," whereas an identifiable timber stand may encompass more land than just a cutting unit, or some cutting units may contain more than one identifiable stand of timber.

[19] "Units receiving partial retention … were assigned old-growth habitat scores to the retained portion of the stand." [634_1102 at 99 (WIP wildlife report)].

[20] The DEIS table therefore misrepresents the effects of the alternatives with bad data, because it presents a specific timber volume removal for each species in each alternative. The Forest Service presently has no way of knowing either those volumes or proportion for each species against the total.

[21] Note that a unit's present species composition and the composition of the timber removed from it (or retained) may be quite different, depending on how partial cutting is applied.

[22] This presumably would be done for economic reasons. If some portions of a unit will have no removal, this would concentrate the one-third removal onto other parts of the unit, unless the volume yield of the unit is reduced from what is expected in the DEIS. Either way, this would shift the effects of the project in ways that the DEIS has not disclosed. Nor has it disclosed that units may include these non-viable portions.

4) Because the basal area information does not yet exist for the project's units, the estimated timber volume yield for each one was assumed to be one-third of the unit's total volume, as calculated from its stand exam. A stand exam has been done for each unit.

    a. Note: This puts information in the DEIS *in conflict with* the partial cut prescription, because the actual volume yield will be determined on how basal-area-related decisions will lay on the land, not the arbitrary assumption that partial cut yield can be determined directly from the stand exam. On this point the district ranger volunteered as an explanation that the DEIS is based on "coarse data" and that "it is a paper plan of crudest form." The DEIS fails to disclose that it has these serious shortcomings or that the described conflict exists.

5) Copies of the stand exams were requested at the July 11 meeting because they are not in the planning record. The request was denied because the stand exams are a work in progress and therefore are not available to the public.

6) The DEIS erroneously says that the deer modeling assumed that one-third of the partial cut units would be logged. GIS specialist Gene Primaky said on a phone call the modeling actually those entire units would be clearcut.

The upshot of this investigative work is that throughout its content the DEIS makes baseless representations on the amount and value of timber the project will produce and the impacts on other resources. The representations are presented as fact, with no indication that foundational data concerning the forest components that would be removed (or retained) is incomplete or based on sketchy assumptions. Instead, the actual outcomes of the project are likely to be quite different than what the DEIS claims.

Further, the partial cutting prescription — as applied so far in the WIP project — is a black box which leaves to the post-NEPA implementation phase of the project all the consequential decisions that are necessary for determining the economic, scenery and wildlife impacts of the project. This, in combination with the marginal-at-best economics of the project and the agency's drive to make the project economical and sellable, leaves the outcome of project open to presently undisclosable high-grading of important wildlife habitat or on a tree species basis. The problem here is that the DEIS is premature, in being issued now instead of after the partial cut unit layouts have been made, which would make the necessary information for an adequate NEPA analysis available. The project's NEPA process schedule, in relation to the unit layout schedule, may be suitable for a clearcut project, but it precludes adequate NEPA analysis for a project that has a substantial amount of partial cutting. What the Forest Service is doing here is authorizing logging on over 3,000 acres without preparing an adequate environmental analysis under the assumption it can defer such analysis pending further site-specific review. This is impermissible under NEPA, which requires evaluation of environmental impacts prior to the point of commitment.

We discuss the ramifications of those problems in detail in our sections on economics and wildlife, and the present section should be read in concert with each of them.

D. The DEIS lacks sufficient information to evaluate the project concerning many important issues

IDT meeting notes from 2014 state that the "EIS will be simplified to make sure we are clearly communicating with the public." [634_0087 (3/21/14)]. We believe this has been taken to an extreme in the DEIS, to the point that some sections are so thin that the impacts of the project cannot be reasonably evaluated. This is notable in comparison to NEPA documents of other recent projects. If simplified communications are necessary, that should be done through a separate summary document. The purpose of an EIS is to provide necessary disclosures of environmental impacts, and a full and fair analysis of them, and simplification in this case has conflicted with that.

II. Significant Issue One: Comments on Timber Supply and Economics

A. The Timber Supply and Demand section of the DEIS is incomplete, triggering the need to prepare a revised DEIS

The DEIS asserts that timber supply from public lands on Wrangell Island is necessary to contribute to local and regional economies. [DEIS at 10]. The Forest Service believes there is a need to "provide an economic timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle." [*Id.* at 4]. The DEIS asserts that the project would meet the stated purpose and need by providing an "orderly flow of timber to large and small timber purchasers, mill operators, and value-added wood product industries in southeast Alaska and benefit the local and regional economies of Wrangell and Southeast Alaska while also improving resource conditions." [*Id.*].

The DEIS fails to show how the project would meet these goals. It provides a five page discussion of timber economics and availability that ignores important factors such as what timber operators are likely to be active in the project area, market trends, alternative sources of timber, and whether possible employment opportunities arising from the sale would actually benefit southeast Alaskans. [*Id.* at 62 – 67]. Indeed, the analysis specifically avoids considering market trends, [*Id.* at 62], the role of the timber industry in the regional economy, [*Id.* at 63], and whether the no-action alternative would still adequately provide adequate volumes of timber for large operators given the availability of state, private and other federal timber. [*Id.* at 65].

1. The DEIS failed to identify regional timber operators or consider the availability of other timber sources

The DEIS implies that there are a large number of potential bidders for Forest Service timber sale projects. [DEIS at 63]. This suggestion is false. As noted in Section I of these comments, there is no realistic domestic processing scenario for Viking given the extremely negative value of the remaining old-growth on Wrangell Island. The size and location of this project thus make clear that the Forest Service is designing this project for Alcan, which has been the only purchaser of large timber sales from the Wrangell Ranger District over the past decade.[23] We question whether timber supply for Alcan in the project area is a significant issue given the availability of state, other federal, and private land timber – or even Canadian timber given Alcan's status as an international timber broker. [Exh. D-08 (Alcan on TransPac

[23] Source: Region 10 Cut and Sold and Volume Under Contract Reports. *Available at:* www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785 (Forest Management Reports and Accomplishments).

Group website); D-06 (Ak Jrnl of Commerce 2006); D-56 (Nichols 2014)].[24] Our scoping comments requested that the DEIS evaluate the availability of other sources of timber for Alcan and consider timber supply and demand in light of Alcan's logging history in the Wrangell Ranger District.

Alcan's utilization of federal timber does not support the development of a project of this scale. Alcan entered into a contract for timber from the Skipping Cow project on November 1, 2005 and had cut 12.7 MMBF as of 2014, or slightly over 1 MMBF per year. [Id.] Alcan took over five years to cut timber from the 3.8 MMBF Backline sale. [Id.] It has cut slightly more than 1 MMBF per year from the Frenchie Stewardship project and also has a contract for the Zarkof Salvage project, even though both sales are likely to be 90 – 100% exported. [DEIS at 63; 634_0775; _0796; _0797]. There is also 13.1 MMBF available from 1,252 acres on nearby Etolin Island. [Exh. D-83 at R-1 (Navy project 2015 ROD)].[25] Thus, given Alcan's recent utilization of timber from the Wrangell Ranger District, it appears that there is no demand for the volume of federal timber proposed for this project (and particularly, no demand in southeast Alaska).

Alcan has timber available from an Alaska Mental Health Trust Sale on Wrangell Island and a state of Alaska timber sale on Zarembo, all of which are 100% exportable. [634_0775].[26] Additionally, the Southeast Alaska state forest system now includes 5,519 acres in the Wrangell Island project area alone, with large units in the Pat's Creek watershed and along Eastern Passage and Earl West Cove. [634_0831].[27] The DEIS failed to assess the amount of acreage that would be made available through non-federal timber sales and discuss how much of that acreage could be sold per year pursuant to Alaska's sustained yield management or provide appraisal and any other economic data that would be useful for purposes of comparing the economic efficiency of state of Alaska cutting units versus TNF cutting units. Further NEPA analysis should consider these and all other pending state and private timber sales on Mitkof, Wrangell Island and surrounding smaller islands prior to determining whether there is actually any demand for federal timber from Wrangell Island at the scale of the proposed action. The DEIS failed to adequately consider outside timber sources, and the analysis is incomplete. The Forest Service needs to produce a revised DEIS that includes a detailed analysis of regional timber operators, their historical utilization of timber from the project area and adjacent islands, and respond with downscaled action alternatives.

2. The DEIS failed to evaluate Alcan's utilization of National Forest Timber or provide information about local employment

Given that there is ample supply and little local demand, our scoping comments requested that the most significant issue in the timber economics section of the DEIS should be local utilization. The Forest Service should have included a downscaled, local utilization alternative given the project's local and regional economy objectives. Previous Forest Service objectives for Wrangell Island aimed primarily at jobs on the island, and a wood products supply for local industry. [634_0767 at 9 (1998 WIA)]. But the DEIS arbitrarily omitted an

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[24] Exhibits consisting of: copy of TransPac Group's website; article on Alcan as runner-up as exporter of the year; and Eric Nichols' application for membership on the Tongass Advisory Committee.

[25] USDA Forest Service. 2015a. Navy Timber Sale Record of Decision. USDA Forest Service, Tongass National Forest. R10-MB-63201. Wrangell, AK: August 2015.

[26] Pendleton, B. 2015. Increased Export of Hemlock and Spruce from Skipping Cow TS and Frenchie IRTC; Zarembo Island. Forest Service Alaska Region, Juneau, AK: April 8, 2014.

[27] Maps: Wrangell Management Area Units, Southeast State Forest.

assessment of the number of jobs and the amount of revenue the project will generate for the community of Wrangell. It also failed to provide a realistic assessment of the timber volume by species and grade that is likely to be transshipped or exported.

The analysis provided a range of potential local employment impacts under the assumption that there could be local sawmill utilization of cedar. That practice is misleading and we request that a revised DEIS provide employment and income tables that reflect the reality of raw log export and transshipment. This information is critical so that the public can evaluate the extent to which this project generates local wood processing employment.

Also, nearly half the value of Tongass timber projects derives from cedar. The DEIS failed to provide information regarding the respective values of tree species utilized locally versus those exported or transshipped without primary processing. This information is also important so that the public can assess how much of the public investment in this project will be returned to the regional economy. If Alcan brings in non-local loggers, and then ships the logs to China, Wrangell loses fish habitat, tourism opportunities and wildlife and gets nothing in return.

Alcan's operational history suggests that this project will not meet project objectives related to local economies. By 2014, Alcan had exported 7,477 MMBF of Sitka spruce and western hemlock, and 2,081 MMBF of Alaska yellow cedar out of the 12.7 MMBF cut from the Skipping Cow project – or over three-quarters of the total volume. [Scoping exhibits 634_0778; 0781; and _0790 through 0793].[28] The Forest Service has made clear that timber purchasers may increase exports of hemlock and spruce in excess of limits established under the 50% export/domestic processing policy and authorized Alcan to export more than 50% of the volume from Zarembo Island. [634_0775]. Indeed, Alcan has only one buyer of any significance for domestic logs – Viking Lumber – and is not able to sell large amounts of timber to Viking. This results in Alcan's exportation of logs in exceeding the Alaska Region's export policy. [634_0830 (Nichols 2013, Alcan request for export limit waiver)]. Thus, although the Alaska Region admits that its practice of waiving the policy is "inconsistent" with policy, it readily grants waivers so that the 50% out-of-region processing policy is a floor rather than a ceiling. [634_0775; _0778; _0781; and _0790 through _0794]. Thus, the analysis should contemplate exports and interstate shipments in excess of the Alaska Region's policy.

3. The DEIS arbitrarily fails to consider timber demand market trends

The DEIS failed to make an effort to consider local timber demand separately from the Tongass National Forest's export program. It fails to consider market trends in any meaningful way and simply states that "this analysis is limited to a snapshot in time based on available information and does not speculate on timber market fluctuations" and suggests that "the value of timber or costs may increase or decrease." [DEIS at 62]. This assertion is arbitrary; the analysis does not consider available information on market trends.

Other federal timber remaining from Wrangell Ranger District sales "is of quality that will be difficult to process domestically and therefore meet the 50% domestic processing

[28] These are the Exhibit 3 series documents (3a through 3k) submitted with our 2015 WIP scoping comments. They were obtained through an August 2015 FOIA request from Larry Edwards of Greenpeace, and including spreadsheets showing the annual export of unprocessed logs and the Regional Office determinations allowing for exports in excess of the Alaska Region's export and interstate shipment policies. (*See also* reference to 634_0796 and _0797 a few paragraphs above.)

requirement."[29] Further, current market trends reflect a "substantial" decline in U.S. lumber prices. [634_0835 at 4-5].[30] Given the low quality of remaining timber in the project area, and long-term domestic lumber market trends, the DEIS should have factored local demand into its economic analysis.

Also, the DEIS needed to reconsider Forest Service timber demand scenarios that reflect the assumption that export markets justify increased timber extraction in the region.[31] The economic scenarios need updating in order to consider the substantial weakening of export markets and the competitive disadvantage of Alaska and Pacific Northwest raw log exporters. China is the primary consumer of west coast timber exporters; overall, nearly two-thirds of U.S. log exports are sent to China. [634_0833, 0834, 0836 at 6].[32] Recent Pacific Northwest Research Station press releases indicate that both the value and volume of log exports from Alaska and the West Coast are declining and at a much greater rate than other timber exporting regions. [Id.]. These data are consistent with industry projections finding that that Alaska and other Pacific Northwest log exporters are losing their market share, and are at an even greater competitive disadvantage relative to Canadian and southern U.S. timber operators. [634_0836 at 11].

In sum, there is little demand and poor markets for locally produced sawtimber for a project of this scale. Additionally, regional timber exporters face weakening foreign markets and the historical competitive disadvantage relative to other timber exporters appears to be increasing. Both economic issues warranted detailed analysis in the DEIS. A revised DEIS needs to consider actual market trends.

a. The DEIS fails to take a hard look at known & reasonably foreseeable market trends & fluctuations

The DEIS [at 62] claims on the one hand that the economic analysis does not speculate on economic fluctuations, yet on the other hand the *purpose* of the project is to manipulate fluctuating conditions (to transform the old-growth industry into a second-growth one, which contributes to a sustainable regional economy). Economic planning and market manipulation is at the very core of the project. It is therefore disingenuous to pretend market fluctuations are unknowable or not relevant.

The DEIS claims that survival of the timber industry depends on a predictable and adequate supply of timber. [DEIS at 63]. Please provide objective data in support of this contention. We fundamentally disagree that lack of federal timber supply is the primary, or even a very important, factor in the collapse of the timber industry. A massive loss of timber and mill jobs in Alaska and the Pacific Northwest in the 1980s and 1990s was driven primarily by automation and the increasingly globalized marketplace. Additional timber volume doesn't change anything about those underlying economics.

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[29] 634_0775 at 1. *See also* 634_0796, Pendleton, B. 2013. Request for 100% Export of Decked Young Growth. Forest Service, Alaska Region. Juneau, AK: November 13, 2013 (showing that the Forest Service will allow 100% export of timber and waive export surcharges to prevent deterioration of timber that timber operators were unable to market). See also 634_0795.

[30] Glass, B.P. 2015. Timber Trends.

[31] Forest Service. 2015. Saddle Lakes Timber Sale Final Environmental Impact Statement at 419. R10-MB-740a. USDA Forest Service, Alaska Region. Ketchikan, AK: September 2015.

[32] Forest Service. 2015. West Coast log and lumber exports decreased in first quarter 2015. Pacific Northwest Research Station, Portland, OR: May 2015; Forest Service. 2015. West Coast log and lumber exports decreased in 2014. Pacific Northwest Research Station, Portland, OR: March 2015; Northwest Farm Credit Services. 2015. 2015 Forest Products Industry Perspective.

The Forest Service is making an even more controversial claim here, which is that by manipulating an *increase* in timber volume this will result in a directly corresponding increase in the economic contribution of the timber industry. It could be, however, that rather than creating a new local job, increasing available Forest Service volume would simply cause people to temporarily shift effort there rather than on timber from another landowner. The Forest Service approach to economics also relies on the unwarranted assumption that by increasing the overall volume of the sale we are increasing positive economic impact, *even though* an operator could certainly make more profit by dropping non-economic units. A 20-acre unit that profits $100 is better, economically, than a 30-acre unit that profits $10. The obvious result of that flawed approach is that a great many of the proposed units are grossly uneconomical. Because the sale has been designed to provide maximum volume, the most profitable units are joined up with as many of the money-losing units as can be made to fit and remain economic. The volume-maximizing approach to sale design (in all alternatives) entirely neglects this critical factor. Please consider it.

The economic analysis in the EIS needs to include a good deal more specificity. Table 12, for example, ought to include more site-specific breakdown. Each unit should be analyzed particularly as to its profitability, and that information should be front and center in the text of the EIS. This is a point of agreement between all interest groups. Operators gain nothing when they lose money logging un-economic units. If the Forest Service wants to boost the local economy by paying people do lose money, then surely it could find a more productive thing for them to do than mow down old-growth forests. The unprofitable units should in all likelihood be dropped from preferred alternative.

Past actions relevant to economics should be considered on a site-specific basis. The June 20, 2012 IDT meeting notes for example indicate that some of the units proposed for this project were previously included in timber sales, but were dropped by the contractor due to poor economics on the site. This sort of information should be included and analyzed in the EIS.

Similarly, the helicopter and partial cut units should be examined specifically and the relevant economic factors disclosed. The helicopter units that are proposed don't seem to offer a very economic option. It also needs to be considered that helicopter sales are unsuitable for small, local mills, as they require an economy of scale to justify the huge up-front cost.

The issue of fall-down in timber volume post-decision should be addressed up-front. The May 20, 2015 briefing paper internally advises that "actual volumes would likely be substantially lower" than the estimates. Representatives of Greenpeace and Cascadia visited many of the proposed logging units last week (July 18-20) and were struck at the poor economic prospects of most of the units. The low productivity of most of the sites is obvious, but reliable timber cruises should be incorporated in to the EIS process to consider the factor objectively. Several units that are proposed here have already been partially logged, presumably as part of road-side microsales or free use programs. In those locations it was apparent that the best, biggest trees that were closest to the road were targeted. It is concerning that this logging does not appear in the EIS or on any of the maps. The economics of most of these units are so challenged to begin with, that when the five or six best trees have already been removed from a given unit the impact on volume and economics is going to be appreciable.

4. The DEIS failed to evaluate market-based local and regional economic transitions

Where economic opportunities are a key component of a decision, the Forest Service needs to ensure that there is a rational basis to assume that a project will provide promised

benefits in terms of employment and economic activity. [33] Our November 2015 scoping comments requested that the DEIS consider the declining role of federal timber in terms of providing meaningful economic impacts to Wrangell and the regional economy.[34] This project will entail considerable expenditures of natural capital and taxpayer subsidies based on the assumption that the Forest Service has the ability to facilitate a wood products industry through large-scale timber removals from public lands.

The DEIS needed to evaluate the extent to which the Forest Service can provide a greater benefit to local economies and to rural stability through investments in meaningful fisheries habitat remediation projects and recreation projects that may yield business opportunities and quality of life improvements for rural residents. For example, the Wrangell Ranger District has previously noted a general public interest in more trails, including for winter recreation, and more cabins, shelters and campsites for local use, and outfitter guide use by a growing marine recreation industry. [634_0767 at 5 (1998 WIA)].

We thus requested that the DEIS provide a detailed discussion that describes the market-based, natural transition of the Wrangell economy toward tourism, fishing and maritime services. These changes are highly relevant to the purpose and need and balance of the environmental costs and benefits of the project. In particular, the DEIS needed to consider the economic trade-offs, including the effects of timber harvests and related activities on commercial fishing and recreation in the project area. But remarkably, the DEIS does not address the meaningful socio-economic changes in Wrangell and other communities that have transitioned away from partial dependence on the federal timber program in any way. Significantly, the DEIS does not even include a section on socioeconomics. [*Cf.* DEIS at xiii; Saddle Lakes Timber Sale FEIS at 324 – 336]. Many non-timber aspects of the regional and local economy, notably tourism and commercial fishing, are doing much better than the old-growth timber industry. *See* 634_0250 (Wrangell Visitor Economy By The Numbers, by Rain Coast Data). These economic factors and trends are directly relevant to the cumulative impacts of the proposed action as it relates to local economic impact and the purpose and need.

It is impossible for the Forest Service to conclude that this project would contribute to local or regional economies without considering the larger socio-economic context – *yet the DEIS arbitrarily does just that.*

The scoping notice asserted that the purpose and need for the project is to "contribute to the *local* and regional economies of Southeast Alaska" and specifically Wrangell. [80 Fed. Reg. at 65691]. Prior planning on this project dates back to 2008 and anticipated that a Wrangell-based sawmill would purchase and process the timber. [634_0832 at 9, 15].[35] In 2009, the Forest Service had identified the timber industry as a "cornerstone" and "economic foundation" of the Wrangell economy along with fishing and fish processing. [Exh. D-__ at 3-8, 3-9 (Navy FEIS 2009)].[36] This assumption reflected *outdated data* from 2005, when there were 29 mill jobs. [*Id.* at 3-8]. Indeed, the adjacent Navy Timber Project reflected an intent "to promote a more stable economy for Wrangell" and cited wood products industry jobs as representing 9% of the community's employment – *in 1999*. [*Id.*, Appx. A at A-4].

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[33] *Tongass Conservation Society et al v. Cole*, Case No. 1:09-cv-00003 JWS (D. AK 2009).

[34] The DEIS at 1 shows that Wrangell's population has increased since 2010, from 2,369 people to 2,406, following declines.

[35] Forest Service. 2008. Wrangell Island Timber Sale Project Plan.

[36] USDA Forest Service. 2009. Navy Timber Sale Final Environmental Impact Statement. Tongass National Forest, R10-MB-632b. Wrangell, AK: March 2009.

Now there are at most, a few micro-sized mills,[37] meaning that the number of mill jobs in the community has dropped considerably since the above 2005 data. [634_0799 (SitNews 2013)].[38] Since 2009, Wrangell's efforts to diversify its economy have resulted in substantial growth in its fishing, seafood processing and maritime industries – indeed, city employees report that the "maritime sector is booming" as Wrangell has become a regional center for vessel repair. [*Id.*; 634_0825 (UFA 2014)]. These efforts have resulted in a five-fold increase in raw fish taxes over the past two decades, a much larger number of fishing vessels, and a maritime services sector that supports local businesses and provides new jobs. [634_0799 (SitNews 2013)]. As reported in SitNews, "it's clear from the investments that the city, state and private sector have made that the future is being built largely around fish with a secondary focus on tourism." [*Id.*]. Indeed, for the three year period relevant to the recent Navy FEIS (2007–2009), salmon harvests delivered to Wrangell averaged 5 million pounds per year.[39] Deliveries have doubled over the past three years, averaging nearly 10 million pounds per year.[40] According to United Fishermen of Alaska (UFA), Wrangellites own 384 fishing permits, 210 fishing vessels, and the industry employs 362 Wrangell residents directly in commercial fishing, or 14.7% of the local population, and 372 seafood processing jobs. [634_0825 (UFA 2014).[41] In sum, it is clear that a market-based transition has occurred, meaning that the timber industry is no longer a cornerstone of the local economy, and the DEIS failed to consider how this project can meet local economy goals in light of the Forest Service's transition to a timber sale program that emphasizes raw log exports and Wrangell's transition away from timber dependence and toward fishing and tourism.

Indeed, recent comments on the state of Alaska's Southern Southeast State Forest Management Plan (SESFMP) show that Wrangell residents have significant concerns about the impacts of large-scale timber projects for non-local use (i.e. for Wrangell's one active mill, Mike Allen Enterprizes). Four Wrangell residents commented in 2015 on the plan. [634_0826, _00827, _0828, 0829].[42] All supported small sales for Mike Allen Enterprizes, but opposed large sales for non-Wrangell timber operators and for export, and explained that there is no local capacity for large timber sales. Additionally, each Wrangell resident expressed concern about how large timber sales would harm Wrangell's ongoing economic transition – specifically impacts to local recreation and tourism and adverse impacts of LTFs and timber sales on water quality and fisheries. [*Id.*] In other words:

- while Forest Service planning on this project reflects the mistaken assumption that the project area is important for local timber use,

- the actual market-based changes to the local economy suggest that fishing and tourism opportunities have become much more significant contributors which would be harmed by the large-scale clearcuts created to support Alcan's foreign and out-of-state markets for unprocessed logs!

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[37] To the best of our knowledge there is one small mill, Mike Allen Enterprizes. Based on comments from Wrangell residents on the Southeast State Forest Management Plan, it appears that currently there is one small operating mill. *See* Exh. 6, 7, 8 and 9.

[38] SitNews. 2013. Wrangell finds economic health in fishing fleet. Ketchikan, AK: August 2013.

[39] *See* www.cfed.state.ak.us/fishery_statistics/earnings.htm.

[40] *Id.*

[41] United Fishermen of Alaska. 2014. Commercial fishing and seafood processing facts.

[42] Respectively, comments on the draft SESFMP by Wrangell residents: (0826) Keith Appleman; (0827) Peter Branson; (0828) Bonnie and Haig Demerjian; and (0829) Stephen Todd.

In contrast to that plain economic reality, the DEIS flagrantly lies about the value of the timber industry to the local and regional economy:

> Alaska timber mills contribute to local and regional economies by providing forest products and employment. The timber industry in Southeast Alaska includes large and small timber purchasers, mill operators, and value-added wood product industries that are dependent upon a reliable supply of sawtimber in the region and on Wrangell Island. [DEIS at 2].

In sum, a revised DEIS must include a socio-economic resource section that provides a realistic assessment of changed economic conditions on the island and region, and acknowledge that the Forest Service is making an effort to thwart a natural, free-market based transition that has resulted in a more optimal allocation of capital and labor by degrading fish, wildlife and recreational habitat through an antiquated and socialized timber-first economic policy.

5. The project cannot proceed under the Forest Service's Illegal Export Policy

The DEIS makes clear that the Forest Service has designed this project primarily to supply timber volume for foreign processors under the Region 10 Export Policy. [DEIS at 27]. All alternatives appraise negative; however, under the domestic processing alternatives, the indicated bid rate ranges from -$218.66 to -$253.21. [*Id.*]. Conversely, the bid rates under the export policy range from -$54.21 to -$91.80. [*Id.*]. This means that estimated local jobs will be fewer under the export policy by nearly 20 percent. [*Id.* (showing job losses of up to 50 jobs per alternative under the export policy.)]. It also means that this project depends entirely on the Forest Service's 2016 export policy. The timber economics section does not mention the policy at all, except for a footnote to Table 12. [DEIS at 66]. Appendix A makes clear, however, that the export policy is the main reason for the Forest Service's timber demand guesstimates that lead to the large volume goals for this project. [*Id.* at 282].[43]

In a March 21, 2016 letter to Regional Forester Pendleton submitted by EarthJustice from the undersigned organizations and others, we explained that the development of the 2016 export policy was a major federal action under NEPA, requiring public notice, an analysis of the policy, and opportunities for public comment. [Exh. D-11 (AWL et al. 2016)]. Similarly, the development of the policy is also subject to the Administrative Procedure Act. In the absence of procedures necessary to comply with the two statutes, the policy is clearly illegal. The failure of the DEIS to address this inconsistency and the effort to move forward with an export project absent statutory or regulatory authority to do so is arbitrary.

B. Comments on Appendix A

The economic analysis for this project relies on a methodology that greatly exaggerates demand for federal timber based on errors and faulty assumptions that undermine the entire stated purpose and need for the Wrangell Island Project. Further NEPA analysis is necessary to evaluate the failure of the methodology, whose highly optimistic market demand projections have consistently proven to have greatly over-estimated the actual later demand. In particular, the selection of the "expanded lumber scenario" was unreasonable. [DEIS at 282]. In our administrative appeal of the 2008 TLMP amendment, we requested a correction

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[43] Appendix A does suggest that "good overseas markets" also drive the "expanded lumber scenario." Given the data produced by the Pacific Northwest Research Station on declining markets for Pacific Northwest and Alaska raw logs, we have no idea where that statement comes from. Certainly not from empirical data.

of the economic studies and scenarios regarding timber production and demand for federal timber. *The errors and flawed assumptions in Appendix A are significant enough that the Forest Service needs to re-evaluate the purpose of the project and timber volume provided-for in project's alternatives.* The continued use of these scenarios violates NEPA by failing to ensure the professional and scientific integrity of the government's methods for assessing timber demand. [40 C.F.R. § 1052.24].

1. The market demand scenarios rely on flawed assumptions and have been repeatedly inaccurate

The Forest Service's is attempting to guess at market demand by relying on scenarios developed through harvest projections developed in Brackley et al. 2006 (634_0489). [DEIS at 282]. Brackley's scenarios reflect unreasonably optimistic timber demand scenarios and rely on an outdated demand study proven to be inaccurate relative to actual market conditions. It is unreasonable to continue to rely on the four demand scenarios, all of which increase over time — even the "limited lumber" scenario reflects a demand rising from 52.8 MMBF in 2010 to 58.9 in 2015. [*Id.* at 279]. Actual logging was considerably lower, with an average annual take of 33 MMBF from 2010 - 2014. [*Id.* at 277]. With the exception of 2012, the Forest Service has considered the industry to be in an "expanded lumber" scenario, which anticipated harvests rising from 61.9 MMBF in 2007 to 105.6 for 2014. [*Id.* at 279]. The reliance on these scenarios is unreasonable, and should not be used to justify the timber volumes proposed for action alternatives.

Despite the low cut and sold volumes and the known constricted market conditions, the Tongass National Forest's demand projections nonetheless continue to assume that supply is the critical problem and that southeast Alaska timber operators will be competitive and maintain historic market shares. However, supply is just one minor issue – the real problem is the industry's inability to compete in lower value commodity markets as a result of the region's high operational costs relative to the Pacific Northwest and other global suppliers. Therefore, the Wrangell Island Project DEIS tiers to and utilizes a methodology that is an ongoing programmatic failure — a failure to provide a realistic assessment of timber markets and the demand for timber from the Tongass National Forest.

The most recent projections – being based on the four hypothetical demand scenarios developed by Brackley et al. (2006) – imagine a competitive Tongass timber industry that can retain past market shares, but the Forest Service has never tested such projections against explicit demand determinants such real price and cost data. All scenarios anticipate increasing demand over time. The expanded lumber scenario, in use since 2012, anticipated demand of 90.5, 98.1 and 105.6 MMBF from 2012-2014. [DEIS at 279]. Actual harvests were 20.8, 36.3 and 39 MMBF, respectively. [*Id.* at Figure 32]. Notably, actual harvests are below the lowest range of expected purchases by roughly 40% even under the *limited* lumber scenario [DEIS at 279, 282 (showing a limited lumber scenario harvest of 273 MMBF under the limited lumber scenario, and actual harvest of 164.7 MMBF)]. The Brackley scenarios and any projections developed from them thus reflect outdated, unsupported assumptions, and the choice of the expanded lumber scenario worsens this error.

Indeed, as part of the pending TLMP Amendment process, the Forest Service has issued a new demand study (Daniels 2015) that explicitly explains that a new analysis is necessary because of changed conditions that have rendered invalid many of the assumptions that informed the 2008 Forest Plan. The DEIS violated NEPA and the APA by failing to disclose the agency's own opposing viewpoint, and by failing to take into account significant new information.

In sum, Appendix A fails to provide a reasonable explanation for the projections. The DEIS failed to disclose the flaws with the TNF's market demand models including the long-term inaccuracy of the projections, the reliance on untested assumptions and the exclusion of relevant factors such as global market prices. The NEPA analyses have also failed to explain the specific factors considered in setting the projected offering levels, the data relied on to justify those different elements of the methodology, or information on whether it had followed agency guidance for updating information found in the methodology.

2. The DEIS arbitrarily selected the expanded lumber scenario

The DEIS assumes that market demand has attained Brackley's "expanded lumber scenario" which estimates a demand of nearly 105 MMBF for 2014 and increasing by 9-10 MMBF per year until 2020. [DEIS at 282]. The DEIS selected the "expanded lumber" scenario based on the export policy and good overseas markets. [*Id.*]. The DEIS projects that the timber industry is in an "expanded lumber scenario" such that perceived demand for FY 2016 is 122.2 MMBF, or roughly the same amount of timber that the industry took over the past three years. [*Id* at 276, 279]. The DEIS thus explicitly relies on Brackley's projected long-term harvest increases as one of the primary reasons for inflating timber demand in arriving at the "expanded lumber" scenario.

The Forest Service identified a "limited lumber" scenario in 2011, and the export policy has not changed since 2009, raising questions about whether the export policy or export markets justify the scenario change. The expanded lumber scenario anticipates "some form of demand stimulus." [DEIS at 278]. There is no explanation anywhere in the analysis for these claims that there are good overseas markets. Had the Forest Service fulfilled its analytical requirement under NEPA, it would have found that current market trends reflect a "substantial" decline in U.S. lumber prices and particularly for West Coast raw log exports. [634_0835 at 4-5; _0833; _0834].[44] Absent identification of some specific demand stimuli that would trigger the "expanded lumber" scenario, we think it is unreasonable to proceed on the basis of a scenario that envisions a demand that is three times as high as actual harvest.

The Forest Service does have the capacity to track export markets, yet the DEIS does not discuss export market information compiled by the Pacific Northwest Research Station.[45] The Forest Service needs to consider long-term trends based on that data, and revisit its selection of the "expanded lumber scenario" in order to consider the substantial weakening of export markets and the competitive disadvantage of Alaska and Pacific Northwest raw log exporters. China is the primary consumer of west coast timber exporters; overall, nearly two-thirds of U.S. log exports are sent to China. [634_0833; [46] _0834;[47] and Exhs. D-89 (Zhou-

[44] These are: Glass (2015), Timber Trends; and two PNW Res Sta. markets update bulletins for 2012 and 2013 (PNW-RB-265 & 266).

[45] We submitted with our November 2015 scoping comments two recent press releases by the Research Station, as an update on the market situation. [634_0833; _0834] These showed export markets as actually declining significantly. We find it highly disturbing that the agency was unwilling to consider its own data in the DEIS. We additionally provide with these DEIS comments other documentation by the Station that the WIP IDT should have found and utilized — the two most recent annual "research bulletins" on the markets for 2012 and 2013 [Exhs. D-89 & -90 (published 2013 & 2015)], and a May 2016 press release reporting on performance of the export market in 2015 [Exh. D-91 (Zhou 2016(a))].

[46] Forest Service. 2015. West Coast log and lumber exports decreased in first quarter 2015. Pacific Northwest Research Station, Portland, OR: May 2015; Forest Service. 2015.

2013);[48] D-90 (Zhou-2015);[49] and D-92 (Zhou-2016(b))[50]]. Those references by the Forest Service's Pacific Northwest Research Station show that both the value and volume of log exports from Alaska and the West Coast are declining, moreover at a much greater rate than other timber exporting regions. In 2015 and 2016, the Station reported the following trends:

- The U.S. log export market is declining.
  - The volume of log exports declined more than 5% from 2013 to 2014.
- The primary log export market for West Coast logs – China – is declining.
  - "China decreased its West Coast log and lumber imports in 2015 as a result of its domestic economic and national restructuring adjustment."
  - 64% of West Coast log exports went to China in 2014, and 59% in 2015 — a 5% decline.
  - In the first quarter of 2016, 49% of log exports went to China.
  - The Station's May 26, 2016 press release noted that Asia-wide the export volume declined, as well as to China specifically.
- The West Coast's share of total U.S. log exports is declining.
  - Its share declined 4% from 2013 to 2014 (from 59% to 55%).
- The volume of West Coast log exports is declining.
  - The volume decline was 13% from 2013 to 2014.
    - This included a decline in Alaska log exports.
  - There was a further 27% decline from 2014 to 2015.
  - Comparing the first quarters of 2015 and 2016, there was a 6.6% decline. Indicating continuing decline in the market.
- The value of West Coast log exports is declining.
  - The value declined 7% from 2013 to 2014.
  - The value declined 33% from 2014 to 2015.
  - Comparing the first quarters of 2015 and 2016, there was a 3.7% decline in value, indicating continuing decline in the market.
- Similar trends exist for exports of West Coast processed lumber, although with differences.

[Exhs. D-90 (Zhou 2015); D-91 (Zhou 2016(a)); D-92 (Zhou s2016(b))]. One stand-out here is the continuing but worsening drop in export volume from 2014 to 2015 by nearly a third, with further deep decline continuing into 2016.

These data are consistent with industry projections finding that that Alaska and other Pacific Northwest log exporters are losing their market share, and are at an even greater competitive disadvantage relative to Canadian and southern U.S. timber operators.

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[47] West Coast log and lumber exports decreased in 2014. Pacific Northwest Research Station, Portland, OR: March 2015.

[48] Zhou, X. 2013. Production, prices, employment and trade, Northwest Forest industries, all quarters 2012. Resource Bulletin PNW-RB-265. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 163 p.

[49] Zhou, X. 2015. Production, prices, employment and trade, Northwest Forest industries, all quarters 2013. Resource Bulletin PNW-RB-266. Portland, OR: USDA Forest Service, Pacific Northwest Research Station. 163 p.

[50] Zhou 2016. News release, title: Volume and value of West coast log, lumber exports down in 2015. PNW Research Station, 3/22/16.

[634_0835 at 11 (Glass 2015)]. In sum, there is little demand and markets are poor for locally produced sawtimber or raw log exports from southeast Alaska. Additionally, regional timber exporters face weakening foreign markets, and the their historical competitive disadvantage relative to other timber exporters appears to be increasing. The failure of the Forest Service to monitor actual market trends in its annual determination of the applicable market scenario is a serious flaw.

3. Appendix A uses an arbitrary formula to calculate timber pipeline goals

Notably, even if the "expanded lumber scenario" were applicable, Appendix A artificially inflates the timber volume goals by using an even more flawed methodology, *the Morse methodology*. [DEIS at 281-282]. The "expanded lumber scenario" (Brackley 2006) is just an input into that methodology. [*Id.*]. The Morse methodology relies on several unsupported assumptions, including a difficulty in estimating demand for Tongass timber, the volatility of forest products markets and rapidly changing market conditions. None of these assumptions are correct given long-term, consistent timber harvest levels, a long-term decline in domestic lumber markets, and a long-term competitive disadvantage experienced by Tongass timber exporters relative to national and global competition. The Morse methodology sets an arbitrary timber offering goal of 142 MMBF that is not justified by the DEIS. [*Id.*].

4. Conclusion

The two methodologies used to determine the perceived need for a project of this scale have consistently overinflated market demand to a significant degree and violate NEPA by relying on misleading economic assumptions, as well as an academic failure to research actual market trends and input those trends into the agency's conclusions. The Forest Service needs to produce a revised DEIS that incorporates and analyzes actual market trend data, rather than relying on a flawed methodology designed to support a massive federal timber sale program for uncompetitive operators in competitive global marketplace.

C. Further NEPA analysis is must include a financial efficiency analysis

A major shortcoming of the DEIS was that it failed to provide a financial efficiency analysis that compares taxpayer expenditures on the agency's timber sale program with estimated revenues. [FSH 2409.18]. Thus the Forest Service failed to disclose the costs of sale administration, sale preparation, design and engineering of roads, agency overhead costs, and the costs association with efforts to ameliorate habitat degradation caused by logging and associated road construction. The DEIS thus violated NEPA by presenting a misleading characterization of the project's economic costs and benefits. It is well known that agency expenditures exceed revenues substantially. The GAO estimates an annual cost-revenue ratio of 12.5:1. [Exh. D-33 (GAO 2016)]. Other estimates, which use the Forest Service's own data, project even higher losses that exceed $20 million annually – or more. [Exh. D-41 (Headwaters 2014); 634_0154 (Mehrkens 2013); Exhs. D-52 & -53 (Merkens 2012 paper & accompanying spreadsheet)]. We thus add that the DEIS should provide a realistic estimate of the public expenditures needed to support Alcan and Viking's timber brokerages.

D. The DEIS failed to disclose the effect of partial-cut units on project economics

(See also other discussions of partial cutting in Section I.C of our introduction and Section III._ concerning wildlife.)

The DEIS section on the Significant Issue 1, "Timber Economics and Availability," is only 4½ pages long and does not discuss the economic effect of partial cutting in any depth, even

though the large proportion of partial cutting is sure to have a profound effect on project economics, including the appraised value per million board feet.

The total timber yield of each alternative will be composed of volume from both even-aged (clearcut) and uneven-aged (partial-cut) logging systems. However, the DEIS fails to disclose the amount of timber volume provided by each system and the monetary contribution of each system to the economics of the alternatives. The missing information is important because the project includes a large area in partial cut units — between 1,483 and 3,528 acres comprising 47% to 75% of the total unit acreage, among the alternatives. The economic aspects of this should have been reported in Table 9 (the comparison of alternatives in Chapter 2) and should have been discussed in Chapter 3.

How the undisclosed partial cut timber volumes were determined is a key issue because the DEIS shows that the project has poor economics. The fundamental feature of the partial cut prescription is an allowed percentage reduction (33%) of the total basal area of trees in a unit. However, basal area does not equate directly to timber volume, because tree height is a co-determinant for volume. Therefore, the timber volume yield from a unit will not be known until it has been determined how the 33% criterion will be applied across the unit and volumes of the individual trees are estimated.[51] The DEIS is vague mention about whether at present there are firm prescriptions for each partial cut unit or when, if in the future, those will be prepared. The unit cards contain no information about unit species composition, whether removals will be distributed across the unit (and if so, how) or in groups, and whether particular trees or groups have already been targeted and on what basis. Accordingly, Larry Edwards of Greenpeace quizzed the district ranger and project staff on July 11, 15 and 18 [Exh. D-28 (Edwards notes, pers. comms. with IDT)], as discussed in our Section I.C. We learned, as also discussed there, that timber yield from partial cut units were estimated from stand exams, which is inconsistent with the basal area criterion for partial cuts, and that decisions on distributed or clustered removals or actual tree selections are yet to be made. Consequently, the timber volume yield and the species composition of the yield from any unit is not yet known.

These are important considerations because the DEIS says the objective of the project's partial cutting is to "achiev[e] an economic harvest of timber" [DEIS at 220], which likely means an objective of trying to maximize (to extent possible) the volume or species-related timber value obtained through the partial cutting. As discussed in detail in our other partial cutting section in our wildlife section (at III.A), the project has conflicting objectives for applying the partial cut prescription. The missing information is therefore fundamental to understanding the economics and feasibility of the project. By lacking this information and using unreliable or incorrect information in its place, the DEIS violates NEPA and is arbitrary.

E. The DEIS failed to accurately disclose the effect of tree species composition on project economics

In partial cut units, the basal area removal by species will not be determined until implementation. [DEIS at 221; Exh. D-28 (Edwards notes, pers. comms. with IDT)].[52] The

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[51] This is different than for a clearcut, in which every tree is taken and the stand exam can therefore serve as a statistical sample for estimating the timber volume yield from the unit. For a partial cut, the volume yield will depend instead on the tree selections that are made.

[52] "Actual stand-specific basal area removal amounts by species will be set in the stand prescription." [DEIS at 221]. This indicates that at the present stage of the project, the partial cut units are a black box in terms of specifically what will be taken or left, and in more respects than just tree species.

DEIS fails to disclose what role will be played by the ability to choose among tree species during implementation, and how this will affect project economics or the trade-offs between economics and other resources (*e.g.,* wildlife and scenery). One hint is in IDT meeting notes, saying that partial cutting will "leave[] 67% basal area; not more than 50% cedar and spruce." In other words, the intention is to cut from 50 to 100% of the cedar and spruce in these units, provided that the required 67% retention of the unit's basal area is also met. This poses the likelihood or at least the potential for egregious high-grading by species, whereas timber sales otherwise are commonly understood to net a high percentage of hemlock on the Tongass. Because partial cutting depends on selecting particular trees or groups of trees, hemlock can be largely avoided. This has the potential for profound effect on the economics of the project, on the proportion of the timber volume that can be expected to be exported (since cedar export is unlimited), on the amount of employment the project will provide locally or in the region, and on ecosystem function including wildlife. The DEIS has not disclosed sufficient information to disclose the related impacts and for the public to understand these aspects of the project. The DEIS therefore violates NEPA.

III. Comments on "Significant Issue 2: Wildlife habitat impacts"

Previous scoping comments filed by the undersigned organizations requested that the Forest Service do and document surveys for wildlife species present in the project area and discuss their locations and preferred habitat uses in the DEIS. This analysis should entail 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 are essential to wildlife viability and abundance, particularly in light of the high degree of fragmentation in the project area. However, the DEIS only catalogued large scale changes without any reference to specific habitat needs or risks to wildlife viability arising from further habitat loss and the substantial proposed increase in project area road density. [DEIS at 28-29]. Overall, the analysis in the DEIS failed to take a hard look at adverse impacts to wildlife as required by NEPA, and failed to demonstrate how the Forest Service can implement this project while meeting its NFMA obligation to preserve wildlife viability.

In this section we begin with a discussion of impacts to Sitka black-tailed deer, Alexander Archipelago wolves and Queen Charlotte goshawks with an emphasis on information and issues that are of heightened importance relative to the timing of prior scoping periods. We believe impacts to the three aforementioned species merit treatment as significant issues given the importance of deer for hunting in the community and the precarious population status of wolves and Queen Charlotte Goshawks. We then discuss impacts to other wildlife management indicators species (MIS).

There has been substantially more logging on Wrangell Island than commonly acknowledged in the DEIS, which generally shows about 6,800 acres logged. In the project's wildlife resource report, however, Table 12 (on page 18) shows that 10,836 acres have been logged on the island.

A. Problems with the use of partial cut logging prescriptions in wildlife analysis

(See also other discussions of partial cutting in Section I.C of our introduction and Section II.D concerning economics.)

The Forest Service relies on a large amount of partial cutting for the WIP project [DEIS at 66], in an attempt to show mitigation of wildlife related impacts, including to deer and wolves and to hunters [*e.g.,* DEIS at 104]. As already discussed in Section I.C of our introduction, partial cutting units comprise 47% to 75% of the acreage of all cutting units in the project, depending on the alternative. As we also discussed there in detail, the estimates

in the DEIS for the timber volume yields of the alternatives and their yields by tree species are misleading, because in the partial cut units trees or clusters of trees have not yet been selected and it is yet be determined how the selections will be made in any of the units. This is a tremendous problem regarding not only determining the overall statistics for the project, but also for determining the impacts of the project's alternatives on wildlife. The changes to forest structure and the related habitat function must be known before impacts can be reasonably predicted.

1. Basal area change is not, by itself, an indicator of impact to wildlife habitat

The metric of percent loss of the total tree basal area in a unit that is the criterion for the partial cut prescription (in this project, 33% removal) considers only that single element of tree size, and does not consider stand structure at all. Yet, it is stand structure and the juxtaposition of areas of differing stand structure that are important for wildlife. For example, the basal area metric does not take tree height into account, and therefore it cannot not predict the timber volume that would be removed (or retained) in a unit, or how the unit's habitat structure would be affected. As a further example, selecting larger diameter or taller trees for the removal component would have a greater effect on wildlife species of concern (and scenery) than selecting average trees or making a random selection. The upshot is that impacts to wildlife habitat (and scenery) are likely to be underestimated by the analysis method used in the DEIS, which really assumes that the proportion of timber *basal area* removed directly represents the impact to other resources. The DEIS and planning record do not document any such correlation, nor do we believe that one exists. The situation is worsened by the fact that the project puts off the selection of the trees that will be cut to the implementation phase of the project. [DEIS at 221; Exh. D-28 (Edwards notes of IDT contacts].[53,54] For these reasons, the DEIS has failed to disclose the impacts of the partial cut component of the project to wildlife and wildlife habitat, and has provided misleading analysis based on a metric (basal area) that is arbitrary for wildlife impacts analysis. Consequently, the DEIS violates NEPA and NFMA. The remedy would have been to prepare the DEIS *after* the partial cut unit layouts are completed, which would have allowed the impacts on wildlife and other resources to be reasonably estimated.[55] Now, a Revised DEIS is needed for that purpose.

A further problem is that the WIP IDT has not had a uniform understanding of what the partial cut prescription means on-the-ground. We repeat our statement from Section I.C:

> *The DEIS provides four differing, incompatible descriptions of the nature of partial cut retention and how it is measured. According to one view, "one-third of the stand would be removed," or secondly and somewhat equivalently that "66 percent of the old-growth stand structure" would be retained. [DEIS at 21 (Ch. 2 Wildlife*

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[53] "Actual stand-specific basal area removal amounts by species will be set in the stand prescription." [DEIS at 221]. This indicates that at the present stage of the project, the partial cut units are a black box in terms of specifically what will be taken or left, and in more respects than just tree species.

[54] Pers. comm., meeting with Wrangell District Ranger and the WIP IDT leader, July 11, 2016. Stand exams have not yet been completed for the project, and it is not yet known whether partial cut removals will be distributed single trees or clumps, and if clumps where they would be located in a unit.

[55] The situation is different for timber projects comprised of clearcut units, because for them the stands exams are directly indicative of the habitat that will be lost and this affords NEPA analysis before the actual unit layouts are done. With partial cuts the consequences for stand structure (habitat) cannot be known until the layout is done.

section); and 234 (Ch. 3 Soil section)]. Another view is that the retention would "maintain 67 percent of the stand volume." [DEIS at 95 (Ch. 3 Wildlife section)]. The authoritative word is in the Ch. 3 Silviculture section, which says in the partial cut prescription "approximately 67 percent of the stand's pre-treatment basal area would be retained … this treatment would remove approximately, but no more than 33 percent of the basal area." [DEIS at 220-221 and 222].[56] *The DEIS analyses for various wildlife species assume that the impact of partial cutting on their habitats is exactly equal to the prescription's percentage of removal (e.g., the deer modeling assumes that 33% removal equates to clearcutting one-third of the unit). [634_1102 at 99 (WIP wildlife report)].*[57]

The DEIS in essence relies upon the unfounded *assumption* that with partial harvest, impacts will be mitigated in *exact proportion* to the basal are percentage of the trees left standing. [634_1102 at 99 (WIP wildlife report);[58] WIP DEIS at 20-21].[59] What this assumption amounts to is that the partial harvest prescription has no impact on the winter habitat value of the stand beyond the precise footprint of the trees that are removed, and making matters worse the resource specialists misunderstood that a different impact mechanism (*i.e.,* the amount of unit timber *volume* retained, or amount of *stand structure* retained) instead of actually the amount of unit *basal area* retained is involved in the partial cutting scheme. Further, this really isn't mitigation[60] because: (1) the additional timber volume that an alternative needs is obtained in some other unit(s), in effectively a substitution for more volume that could have been logged from the first unit; and (2) there is no assurance that remaining habitat in partial cut units will have any habitat value of significance [DEIS at 20-21 (Mitigation)].

Of importance in assessing impacts to wildlife is the Size Density Model (SDM) vegetative dataset. Timber volume classes are part of the core of the SDM dataset. [2008 TLMP FEIS at 3-139 to 140]. The timber volume classes are based, through aerial photo-interpretation, on tree height, crown size and stand texture. [603_0136 (Caouette et al. 2000)]. The metric in the DEIS of percentage removal of a unit's basal area bears no relationship to these factors, which SDM relies upon. Even if this were not the case there would still be a tremendous analytical fault because how the basal area metric will actually be applied on-the-ground in the WIP project is presently *indeterminate*. It is indeterminate because the trees that will be removed have not yet been identified, and also there are no clear criteria for their selection because the Forest Service has proffered several conflicting objectives for the selection process. Those objectives are stated in the Silviculture section of the DEIS [at 220-221]:

- "maintain or create a stand with trees of three or more distinct age classes, either intimately mixed or in small groups";

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[56] In all four of these definitions we are troubled by the use of the word "stand." It seems that what is really meant is cutting "unit," whereas an identifiable timber stand may encompass more land than just a cutting unit, or some cutting units may contain more than one identifiable stand of timber.

[57] "Units receiving partial retention … were assigned old-growth habitat scores to the retained portion of the stand." [634_1102 at 99 (WIP wildlife report)].

[58] Stating that in the deer analysis, "these units were assigned old-growth habitat scores to the retained portion of the stand." *Also*: "The percent cut was assigned clearcut values." [Id.].

[59] The same assumption is made regarding impacts to scenery [DEIS at 118], and we believe this assumption is likewise unfounded.

[60] See DEIS at 20-21: "Project Design Features and Mitigation Measures for Action Alternatives … Wildlife – In units designated for uneven-aged management (partial harvest), a maximum of one-third of the stand would be removed leaving a minimum of two-thirds to provide for wildlife values."

- "maintain visual quality and provide wildlife habitat";
- "maintain[ ] [ ] multi-storied stand structure";
- "achiev[e] economic harvest of timber";
- "economically harvest a portion of the stand while retaining trees that would be economical to harvest in the next entry, while mitigating other resource concerns."

Fours things stands out here. First, economic timber production is predominant among the objectives (mentioned twice), and this can be expected to strongly influence the unit layout, which will be done later. Second, to boost the economic prospect for selling timber, a co-objective is to merely "mitigat[e]" impacts on the other resources. Third, for wildlife the intent for the future layout and cutting of these partial cut units is to only *"provide"* wildlife habitat – a very minimal standard – while in contrast values for other resources are intended to be "maintain[ed]." Fourth, regarding forest composition the focus is on *silvicultural structure* within the unit, not maintaining the existing *habitat structure* of the unit.[61] The results are that the partial cut units are likely to be high-graded, to the detriment of wildlife habitat, and that the habitat function of the retained portion of the unit may be impaired to a greater extent than simply the proportion of the unit's tree basal area that will be removed.

In sharp contrast to the above, the wildlife analyses for wildlife species implicitly assume that: (1) each of these partial cut units is uniform throughout; (2) the forest to be removed from the unit has that same uniformity; and (3) how the one-third removal is accomplished through the actual selection of trees or groups of trees (or which species of trees) does not matter.[62] That is, the analysis assumes that the removal will be exactly representative of the existing stand structure from a habitat function perspective, and that it will not impair other parts of the unit. The reality of what would happen under this project is actually quite different, and the wildlife analyses are therefore arbitrary and misleading, and they fail to disclose the impacts the project is likely to cause to wildlife and wildlife habitat.

B. The DEIS claims mitigation of impacts to wildlife,[63] but offers no assurance it will occur

The narrative of the DEIS relies on vague statements about past and future thinning and partial cutting prescriptions to try to show mitigation of the project's impacts to deer and other wildlife. For example:

> Project Design Features and Mitigation Measures for Action Alternatives. To reduce or avoid the overall impacts of this project, design features have been incorporated into the design of the harvest units for all action alternatives based on the application of the Forest Plan Standards and Guidelines and management prescriptions. The intent of these standards and guidelines are to help avoid, minimize, or mitigate possible adverse impacts due to project activities. Where applicable, these site-specific project design features are identified the unit and road cards. …

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[61] And as the project's first wildlife biologist put it at a 2012 meeting: "If the proposal is partial cut … there is an effect to canopy structure, therefore you are affecting wildlife habitat." [634_0294 at 3].

[62] The effect of removals on the juxtaposition of habitat elements is important here. [*See e.g.,* Exh. D-34 (Gillingham 1997); Exh. D-45 (Kiester & Eckhardt 1994 peer review); and Exh. D-62 (Person 2001, replacing an incomplete and poor-quality copy in the planning record)]. Note that 634_0615 is only the front matter of Person (2001) and also is not a searchable document; therefore we are submitting a complete, searchable copy as an exhibit. We submitted a complete, searchable copy with our 2011 scoping comments, and are disturbed that what is in the record is incomplete and inferior, and also the Kiester & Eckhardt (1994) is not in the record even though we submitted it at that time.

[63] Although this topic is presented in the context of deer, it applies equally to other wildlife species.

> Silviculture: Where specified, uneven-aged management (partial harvest) would harvest a maximum of one-third of the stand leaving a minimum of two-thirds to provide for visual, wildlife, and other resource values. … Wildlife: In units designated for uneven-aged management (partial harvest), a maximum of one-third of the stand would be removed leaving a minimum of two-thirds to provide for wildlife values. The remaining stand would provide cavity-nesting habitat and other habitat values. [DEIS at 20-21, underline added to section headings].
>
> *Activities that have improved habitat for the primary prey (deer) include pre-commercial thinning which has improved the forage on approximately 4,000 acres since the 1970s with an additional 1,250 acres planned over the next 10 years. [DEIS at 93].*
>
> *Uneven-aged harvest prescriptions would lessen reductions in habitat capabilities as both some cover and forage would be maintained in harvested stands. [DEIS at 104].*

In those places in the DEIS or elsewhere in its content, the DEIS provides no information to quantify these supposed mitigations or to demonstrate that they are anything more than wishful thinking that would have more than negligible benefits.

Thinning of the second growth in clearcuts is well known to have only transitory benefits, since it only delays stem exclusion and the resulting total loss of carrying capacity for deer.

While partial cutting is a "design feature" of many of the project's units, it has not yet – at the time of this DEIS – been "incorporated into the design of harvest units."[64] The design of partial cut units has not progressed beyond the mere drawing of the units' boundaries. Thus, there is no assurance at all that meaningful mitigation will be achieved, especially since (as discussed previously) the several objectives for applying the partial cut prescription conflict with one another and are ineffective at protecting the forest structure[65] deer depend upon in winter. The *actual design* of the partial cut units – meaning the selection of the individual trees or clumps of trees for cutting – is of critical importance for knowing the impact on deer habitat and carrying capacity.[66] Factors affected by the actual selections (and conversely the quality of the retention) include tree heights, tree species, canopy structure, and the juxtaposition of the selections and retentions to habitat patches inside or outside the unit.

Concerning tree species that will be logged in partial cut units, the DEIS does not disclose by species the basal area or timber volume by species that will be removed in individual units or overall by the project, DEIS Table 12 being absolutely deceptive.[67] This,

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[64] This falsehood is also included in the project's wildlife report, which says: "Units receiving partial retention (e.g. 66%, 95%, 98%) prescriptions were specifically designed to minimize effects to deer winter range …". [634_1102 at 99]. The design of units has not progressed beyond the mapping of their borders. Moreover, this appears to be text lifted from documentation of another timber project, since WIP has no 95% or 98% retention.

[65] Although cavity nesting habitat (e.g. for black bears, birds and small mammals) is mentioned, this likely to be in snags or unsound live trees. While that structure exists presently, the DEIS does not explain how (or whether) it can be assured that a continuing supply of this habitat will be maintained in the unit through the long-term, since those snags and existing cavity trees eventually fall.

[66] This is information the Forest Service will eventually have, as the project proceeds into the unit layout phase. Therefore, the problem here is not that the Forest Service cannot afford to get the information, but that the DEIS has been prematurely issued before the needed information has been obtained. This is a peculiarity of partial cut units (in contrast to clearcut ones), because it is the details of the layouts of these units that will determine their impact. Also, this problem pertains to the impacts to all wildlife species, not just deer.

[67] As already pointed out, Table 12 in the DEIS purports to disclose for each alternative the volume the project would obtain from each tree species. The table does no such thing. When the percentage each species comprises of the total estimated volume is calculated, each species percentage is identical

and particularly the volume, cannot be known until later: "[a]ctual stand-specific basal area removal amounts by species will be set in the stand prescription."[68] [DEIS at 221]. However, IDT meeting notes reveal that although the total basal area removal for a unit may not exceed 33%, the removal of cedar and spruce will be not less that 50%, and could be a great as 100%. [634_0258 at 3]. Thus, high-grading of the three least common tree species (spruce and both cedars) of the four predominant species is accommodated and very likely intended.[69] The DEIS has failed to disclose this or to discuss the implications for deer or other wildlife species. It is a matter both of the actual impacts and whether partial cutting will provide effective mitigation.

C. Concerning analyses in the DEIS of impacts to deer

Our scoping comments identified significant concerns about the lack of high value winter deer range on Wrangell Island and consequently the impacts of this project on remaining deer habitat. In the DEIS the Forest Service failed to consider measures in the action alternatives that would meet its obligations under NFMA to provide for viable deer populations, and failed to take a hard look under NEPA at options that would reduce adverse impacts to deer and another resource (wolves) and use (subsistence) that depend on deer. Also, the range of alternatives is inadequate for evaluation of the issues that concern deer. These are critical matters because of the island's low deer population. The island's originally low and then further impaired carrying capacity for deer are well recognized. [1998 Wrangell Island Assessment; Shady EA/FONSI; WIP DEIS Table 21].

1. The DEIS failed to adequately protect low elevation deer winter habitat

The agency refused to consider in detail an alternative adjusting OGR boundaries in a way that would provide additional protections for deer based on the ongoing Forest Plan Amendment process. [DEIS at 23]. This rationale was arbitrary; the TLMP authorizes the Forest Service adjust OGRs as part of project level planning, [TLMP at 3-62]. Indeed, the Forest Service has proposed to modify OGRs at the project level during the Amendment process in order to provide timber volume. [*See, e.g.* September 2015 Saddle Lakes Timber Sale FEIS at 2-31 – 2-32]. The Forest Service also eliminated an alternative that would preclude removals of old-growth forest in low elevation areas, basing that decision on the assumption that Alternative 5 would reduce effects to wildlife habitat. [DEIS at 24].

The DEIS indicates that there has already been a loss of more than one-third of deer winter habitat below 800 feet in elevation. [DEIS at 28]. Previous Forest Service analyses indicated that deer numbers are lower on Wrangell Island than on surrounding islands based on browse indications, pellet density data and hunter harvest information. [634_0842 at 3-17 (Shady EA/FONSI)]. These low population numbers may reflect the significant loss of winter deer habitat in many Wrangell Island landscape units. [634_0767 at 16, 21, 22, 27, 37 (1998 Wrangell Island Analysis)]. It appears that state timber projects have had or will have an additional significant impact on whatever high value winter deer range remains on the island. [*Id.*]. Indeed, in 2004 the Shady project EA noted that "*any additional loss of important deer habitat could reduce the ability of an already depressed population to recover.*" [634_0842 at 3-19]. Given the cumulative loss and the existing scarcity of high value winter

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across all alternatives. Instead, the data is really just the project area's species composition. The yield by species cannot be known until after the actual layouts of the partial cut units has been completed.

[68] And tree height is an additional, significant factor in determining volume.

[69] We suspect that high-grading is intended, to make this economically-troubled project more enticing for potential bidders.

deer range on the island, we believe that the DEIS failed to adequately consider preserving remaining moderate and lower value deer habitat,[70] and include impacts to those habitats as a metric for project impacts.

Many of the WIP cutting units abut previous harvests where canopy closures are now or will soon be occurring. [DEIS at 37]. The proposed action would also further fragment or directly remove much of the little remaining winter deer habitat. [DEIS at 37 (Alt-2 map), and at 81 (deep snow deer habitat map)]. Much of the project area and surrounding lands are already heavily fragmented and contain 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.

The alternatives also remove or impair numerous elevational corridors to low elevation winter habitat. Not only does this reduce winter accessibility to such habitat for deer, it increases the efficiency of predation on deer because deer are left fewer, often narrower corridors and that elevates risks.

2. The DEIS analysis of cumulative impacts to deer is arbitrary

In discussing cumulative impacts to deer, on page 106 the DEIS claims that although the project would impact deer, "deer would continue to persist at current levels." The claim is based on statements that:

- of the historical deer winter habitat, 67% of the deep-snow and 82% of the average-snow habitat would still remain;
- 96% of the non-winter habitat would still remain; and
- 77% of the island's carrying capacity for deer would be maintained.

[DEIS text at 105-106,[71] and Table 38]. The implication the DEIS makes is that there are large remnants of important habitat, so the population would not diminish. That implication and the conclusion that the current population level would be maintained are unsupported by any facts or analysis, and rely simply and arbitrarily on retention percentages that superficially appear to be large and satisfying.

An important perspective that is lacking in the analysis is a look at the project's impacts on deer habitat in comparison to those that have already occurred since the 1950s. We provide such a comparison here, using calculations on data in the DEIS:

Table 1. (all lands)	**Additional loss, as a percentage of loss-to-date (or loss already committed-to at stem exclusion)**				
	Alt. 1	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**
Carrying Capacity	0	30%	17%	22%	22%

[70] The significant loss of high-value deer winter range on the island makes the remaining average-value deer winter range more important than it otherwise would be. See our Table 1, below, and the related discussion.

[71] We note errors on these pages: (1) even though this is a cumulative impacts section, the acreage given for past logging is for *NFS-only* lands, not all lands [p.105]; and (2) this sentence is incorrect: "[c]umulative **reductions** in deep snow and average snow habitat **would be reduced** under all action alternatives" [p.106, emph. added]. There will be reductions, but cumulative reductions will not be reduced.

stem exclusion					
Deep-snow habitat	0	5%	4%	5%	2%
Average-snow habitat	0	40%	25%	28%	28%

Past logging on Wrangell Island is recognized as having had a high impact on habitat [634_0767; _0842], and this table shows that the action alternatives would cause a substantial cumulative addition to those impacts.[72] It also shows that although the additional percentage reductions of deep-snow habitat are small numbers, the additional loss of carrying capacity is nonetheless substantial, at 17 to 30%. The table suggests that this is because of the quite large (25-40%) additional reduction of average-snow winter habitat. The DEIS failed to disclose the substantial magnitude of the further reduction of deer winter habitat.

The cumulative impacts section on deer includes Table 37, which shows impacts to carrying capacity, with capacity expressed in units of maximum number of deer.[73,74] However, the table and its accompanying discussion fail to address the issue of what impact the alternatives may have on deer in the system in which they exist on Wrangell Island. The system includes predation by wolves and bears, and the Forest Service acknowledges the deer population to be chronically low. The DEIS does not attempt to explain how the numbers in Table 37 have any use in judging the impact of the project on this deer system, including the size of the deer population. In fact, we believe the numbers in Table 37 have little if any value for that purpose,[75] and that they are misleading information.

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[72] As an explanation of the table, using as an example the reduction of average-snow habitat by Alternative 2, the additional reduction caused by the alternative would be equivalent to an additional 40% of the loss to that habitat that has already occurred. Our calculations for the table used data from DEIS Tables 21 and 38.

[73] The table is mislabeled. What it shows is a theoretical maximum number of deer, not "theoretical number of deer." Deer populations rarely reach carrying capacity, especially when there is predation. "[A] habitat capability model is not a population model and therefore cannot be used to estimate deer numbers (simply the potential for the maximum number of animals if other biotic and abiotic factors are not controlling the population at low numbers." [Exh. D-34 (Gillingham 1997, peer review of the deer model]. As one example, "predators … reduce the number of animals below the theoretical carrying capacity." [Id.].

[74] The numbers in the table are derived from the deer model, and are expressed in false precision. The deer model is incapable of accurately producing results to the four significant digits that are shown.

[75] "Any equilibrium density for deer in the presence of wolves will be well below carrying capacity; therefore, actual deer numbers will always be well below habitat capability estimates if the HSI model values accurately represent K. Further, wolves may suppress deer numbers at a level sufficiently below K to rule out significant effects of compensatory mortality." [634_0579 at 22 (Person et al. 1997,

Table 37 should instead have shown deer model results in units of deer per square mile (deer/mi^2) — i.e. those in Table 21 — which are directly comparable to the 18 deer/mi^2 threshold in Forest Plan standard and guideline XIV.A.2. The project's impact on the Wrangell Island deer population should have been analyzed and discussed in consideration of the results of making that comparison, and in consideration of the fact that deer in some other parts of the game management unit that includes Wrangell Island (GMU3) have been in a "predator pit" at very low numbers for several decades. Standard and guideline XIV.A.2 was developed on the basis of scientific knowledge of the foundations and dynamics of the wolf/deer (predator/prey) community in the region.[76] [634_0579 (Wolf scientists' letter to Pendleton, 1997); _0615 (Person 2001; _0575 (Person et al. 1996, wolf conservation assessment)]. We find the following facts:

1) the Wrangell Island deer population is known to be chronically low [634_0842; _0767];
2) the modeled carrying capacity of Wrangell Island for deer is now far below the Forest Plan's threshold of 18 deer/mi^2 [DEIS Table 21], even without considering predation;[77]
3) the project would cause a substantial loss of deer winter habitat and carrying capacity on the island in comparison to losses from the past six decades of logging [*see* our table above];
4) creation of a predator pit for Wrangell Island deer or even functional extirpation of deer from the island are possible[78] [Exh. D-34 (Gillingham 1997, peer review of the deer model];[79] and
5) the DEIS has not taken these factors into account in its cumulative impacts analysis for deer.

For those reasons, the DEIS has failed to take the "hard look" at impacts to deer that is required by NEPA, and its conclusions are arbitrary.

3. Already substandard carrying capacity for deer in WAA 1903 is worsened by the project

A sufficient habitat carrying capacity for deer is necessary to support subsistence use of deer while sustaining populations of Alexander Archipelago wolves, and accordingly TLMP

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wolf scientists' letter to Pendleton)]. Also, because of increased access afforded to hunters and wolves by new logging roads, deer mortality will be increased and "the deer will simply not get to [the modeled carrying capacity numbers] because key population dynamics are being ignored." [Exh. D-34 (Gillingham 1997].

[76] Although the foundations and dynamics the predator/prey system were taken into account in determining the 18 deer/mi^2 threshold in the standard and guideline, the deer model by which the threshold is applied is a simple one that omits some important aspects of the system. As the citations indicate, the model tends to overestimate carrying capacity (and accordingly underestimate impacts).

[77] The deer model does not take predation into account at all.

[78] On Mitkof and Kupreanof Islands deer have been at chronically low numbers for over three decades, with no end in sight, even though deer can easily migrate there from the mainland (i.e. similar location to Wrangell Island), and the Kuiu population has been functionally extirpated despite an easy crossing of Rocky Pass by deer from Kupreanof Island.

[79] "It is not only the amount of winter range but the juxtaposition of those habitats relative to each other that is important to maintaining deer populations . For example , during extreme winter conditions, if deer become very predictable in their spatial distribution, we will approach the same situation as documented with wolves o n Coronation Island by Dr. Dave Klein." [Exh. D-34 (Gillingham 1997)].

requires providing a carrying capacity of 18 deer/mi^2 where possible. [TLMP at 4-95 (standard and guideline XIV.A.2)]. Wrangell Island (wildlife analysis area (WAA) 1903) is already below this carrying capacity; however, that fact does not relieve the Forest Service of its obligations to: under NFMA to protect viability of the wolf; under ANILCA maintain subsistence use of deer; and under the intent of the standard and guideline to manage its actions to those ends. In addition, as discussed above, the viability of the deer population on Wrangell Island may be at risk of a predator pit or extirpation because of the combination of low carrying capacity, predator/prey dynamics, chronic low population and other factors. Non-degradation of the already substandard carrying capacity and the island's deer winter habitat would avoid increasing those risks.

4. The deer model results are not reliable, and the model was not run as stated in the DEIS

The DEIS provides only vague information on exactly how the deer model was run and was utilized. This is a sharply in contrast to other Tongass timber project EISs, which have provided details on that, sometimes leading to errors or oversights being discovered. Consequently, it is not possible for us to determine whether this project has used the model correctly, and that is a serious flaw in the DEIS. The project materials state merely that "[a]ll analysis is consistent with the 2011 Direction ..." [634_1102 (wildlife report)], and "[m]odel methods are based on recent direction provided by the Forest Service and include: " only two points concerning elevation and when all lands or NFS-only lands were modeled. [DEIS at 91]. The information given is incomplete and inadequate.

Further, we challenge the 2011 deer model direction, and provide as an exhibit a critique by Greenpeace of the 2011 direction. [Exh. D-35 (Greenpeace letter to Cole, 2012)]. The model should be used differently than directed.

a. The deer model was not run as stated in the project record concerning partial cut units

The DEIS failed to disclose how deer modeling was performed on partial cut units. The project's wildlife report states the way it was done is that "these units were assigned old-growth habitat scores to the retained portion of the stand." [634_1102 at 99 (WIP Wildlife Report)]. The prescription is for partial cut units to be two-thirds retained and one-third cut (on the basis of tree basal area). So, in other words what the statement means is that the modeling assumed that one-third of such units will be clearcut and two-thirds will remain old-growth.

Because we were suspicious of how this modeling methodology could actually be applied, since the units layouts have not yet been done (*i.e.* with individual trees or clumps of trees not yet selected), Larry Edwards of Greenpeace met with IDT officials on July 11 and had two subsequent phone calls with them, to resolve that issue.

The outcome of the final call, today, is the modeling actually was not done by the method stated in the project's documentation. As project GIS specialist Gene Primaky explained, way he ran the model assumed that the units would be entirely clearcut. [Exh. D-28 (Edwards' notes)].

What is troubling here is, first, that the DEIS is devoid of details on how the model was run. Secondly, the wildlife report in the project record contained misinformation. Third, at Edwards' July 11 meeting with the district ranger (who will be the decisionmaker and attended many of the IDT meetings) and the IDT leader had no idea how the modeling had

been done [*Id.*], despite deer modeling being a critical issue.[80] Further, it appears that the project biologist may not have known how the modeling was actually done and whether it met his requirements and expectations. Finally, these observations are troubling as an indicator that there may possibly be other problems in the project DEIS, if oversight was insufficient.

b. Non-federal lands were not properly accounted for regarding cumulative impacts to deer

On a July 18 phone call that included the project's GIS specialist he revealed in answer to a question that for the original 1954 condition for deer carrying capacity on Wrangell Island, the model runs assumed the carrying capacity of non-federal lands on the island was zero. [Exh. D-28 (Edwards' notes)]. This was not disclosed in the DEIS. Making this assumption gives a completely unrealistic view of the condition at that time and of the relative change to the present time and in comparison to the action alternatives. Other projects have been able to make a credible estimate of the all-lands forest condition at that time for purposes of modeling. It seems that should have been done here. If it is not possible to do for this project, the DEIS should have candidly disclosed that and should have foregone all cumulative impact comparisons to 1954 for deer carrying capacity. As it has been done, the analysis is misrepresentative because the reported 1954 carrying capacity can bear no relationship to the deer populations and amount of annual deer harvest in that era. Going ahead, every effort should be made to make a reasonable estimate of the 1954 carrying capacity, based on inclusion of the likely forest composition across all lands at that time.

We point out further that the comparison of the present carrying capacity to 1954 as having been reduced by only 15% [Wildlife Report Table 17] is erroneous for an additional reason. It is a cumulative impact analysis (*i.e.* spanning several decades), but it considers only "NFS-only" lands, not all lands.

5. Subsistence uses of Deer

The Wrangell Island Project violates the Forest Plan and NFMA because Wrangell Island (WAA 1903) has far less carrying capacity for deer than the 18 deer/mi^2 threshold in Forest Plan standard and guideline XIV.A.2. [*See* the carrying capacity discussions in ¶¶2. & 3. above]. The function of the standard and guideline is to both protect the sustainability of wolf populations and provide habitat to support an adequate population of deer for hunters, because wolf sustainability and the ability to acquire deer are interlinked. If there is a shortage of deer, some hunters will kill wolves to try to make more deer available, and this can threaten the sustainability of wolf populations and the viability of the Alexander Archipelago wolf. Carrying capacity on Wrangell Island is far below the threshold needed to ensure an adequate supply of deer for hunters, so the scale of the project is inappropriate, and the project should be terminated.

Our scoping comments requested an assessment of the impacts on subsistence from increased access for sport hunting and fishing due to more roads.[81] Given the numerous

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[80] "Deer habitat analysis has proven to be the single most contested and problematic issue in project after project on the Tongass NF. Problems include questionable use of the deer HSI model in project-level analysis, inconsistent procedures in applying the model, calculation errors, and inadequate documentation. " [Comment by Patricia O'Connor (USFS) at p.73 in a tracking form for internal USFS comments on a draft of the eventual 2008 TLMP FEIS, 6/28/2007, TLMP record 603_1265].

[81] Statement by project wildlife biologist: road density "is a concern since the roads are connected to the community." [634_0048 (8/21/12 IDT meeting notes)].

proposals for timber-related road construction in the project area, it is necessary to do project level analysis of road closures and road management objectives now rather than to defer the analysis to the District Access Travel Management process.

C. Impacts to Alexander Archipelago Wolves: consider abundance and significance of GMU 3 populations

We have significant concerns about the impacts of continued intensive logging and road construction in GMU 3 including Wrangell Island, and request that you consider impacts to wolves on Wrangell Island *as a significant issue* for the Wrangell Island Project. The DEIS is deficient in considering impacts to wolves in a mere three pages which only briefly mention increased risks the project would cause to the population due to reduced deer habitat capability and road density. The discussion fails, for example, to analyze these risks in sufficient detail or to include any site-specific analysis of project area wolf population status or critical issues such as the extent to which the project could increase human-caused mortality. [DEIS at 91-93]. The DEIS assumes that wolves would persist on the island despite acknowledging that localized depletions would occur, but without providing meaningful analysis to support its conclusion. It suggests that "wolves are highly mobile" and can move to adjacent islands with higher deer densities to meet their ecological needs – without discussing whether, or the degree to which, this is relevant. [*Id.* at 93].

1. The DEIS failed to analyze risks to GMU 3 wolf populations

Our November 2015 scoping comments requested that the DEIS consider and disclose a reasonable population estimate for Wrangell Island and assess the significance of that population relative to the southern GMU 3 islands complex, and to GMU 3 and the Tongass National Forest as wholes. The DEIS provides no information about the Wrangell Island wolf population at all, and ignores the significance of whatever wolf packs remain on the island relative to the species viability across its range.

Dr. Person's statement regarding the Big Thorne Project identified GMU 3, including Wrangell Island, as an area of significant concern for AA wolves:

> Other areas of Southeast Alaska where wolves historically were abundant have conditions similar to the Prince of Wales Archipelago. Extensive logging and road construction have similarly changed conditions for deer and wolves on Kuiu, Kupreanof, Mitkof, Zarembo, Revillagigedo, and Wrangell Islands.[82] In conjunction with the Prince of Wales Archipelago, those islands sustain most of the wolf population in Southeast Alaska. (Person et al. 1996). Decay 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. [634_0154 at ¶13e (Person 2013 Dec'l)].

ADF&G considers the wolves on the southern GMU 3 island complex (Etolin, Wrangell and Zarembo Islands) and the northern GMU 3 island complex (Kuiu, Kupreanof, Woewodski and Mitkof Islands) to be separate populations for management purposes. [Exh. D-03 at 24-25 (ADF&G 2012, IM Feasibility Assessment, Unit 3)]. The agency's GMU 3 AA wolf population estimates are "crude" and rely on Dr. Person's Prince of Wales Island research and reflect average territory and pack size from similar habitat. [Id. at 5; Exh. D-48 at 39 (Lowell 2006); Exh. D-49 at 41(Lowell 2009)].[83] Historical population estimates for the GMU

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[82] Note that 5 of these 6 islands are in GMU 3, the exception being Revillagigedo Island which occupies a portion of GMU 1A.

[83] The Lowell references are: Lowell 2006(b) – Unit 3 wolf management report. Pages 38-44 in P. Harper, editor. Wolf management report of survey and inventory activities 1 July 2002-30 June 2005.

3 wolf population are between 125 and 235 wolves in 21 packs, based on the amount of suitable habitat below 1,800 feet in elevation. [Lowell 2006(b) at 39; Lowell 2009 at 42]. However, the agency recently determined, concurrently with the development of proposals to implement predator control, that its population estimates for AA wolves in GMUs 3 and 1A may be high. [Exh. D-04 (ADF&G 2012(b))].

In 2012 an ADF&G Division of Wildlife Conservation white paper indicated that using the results from Dr. Person's Prince of Wales Island research were likely to over-estimate wolf populations in other areas:

> However, Person et al. (1996) derived the region-wide estimate based on a calibration of wolf density in GMU 2, which represents some of the more productive habitat in Southeast Alaska with respect to deer, a primary prey of wolves. Also, the wolf estimate was based on habitat capability for deer, not actual deer population numbers. Consequently, the region-wide estimate of the 1990s may have been biased high. [Exh. D-04 at 2 (ADF&G 2012(b))].[84]

Because "[w]olf populations are closely tied to populations of deer," Dr. Person has stated that "[i]f deer populations decline substantially, wolf populations are very likely to decline eventually because of a reduced prey base." [634_0150 at ¶23]. For this reason, it is important to recognize that actual deer population numbers are extremely low in portions of GMU 3. GMU 3 deer populations in general "have existed largely at levels well below carrying capacity since the 1960s." [Exh. D-03 at 2 (ADF&G 2012(a), IM Feasibility Assessment)]. In GMU 3, particularly the northern island complex (Kuiu, Kupreanof and Mitkof) pellet densities and deer harvests are at extremely low levels following a series of severe winters. [Id.; Exh. D-50 at 7-24 (Lowell 2013, Powerpoint on the 2012(a) IM FA)[85]]. Thus, the current status of deer populations in GMU 3 suggests that the higher range of AA wolf population estimates likely suffers from the upward bias indicated in the Division of Wildlife Conservation's white paper.

2. Comments on the carrying capacity for AA wolves primary prey, deer

The Wrangell Island Project violates the Forest Plan and NFMA because Wrangell Island (WAA 1903) *currently* has far less carrying capacity for deer than the 18 deer/mi^2 threshold in Forest Plan standard and guideline XIV.A.2. [*See* the carrying capacity discussions in ¶¶B.2 & B.3 above]. Nonetheless, the project would decrease carrying capacity even more, and the impacts this habitat loss are non-linear [Person 2001] — a fact not taken into account by the DEIS.[86] The carrying capacity on Wrangell Island is far below this threshold

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Alaska Department of Fish and Game. Dec. 2006; Lowell 2009 – Unit 3 wolf management report. Pages 41–48 in P. Harper, editor. Wolf management report of survey and inventory activities 1 July 2005-30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska. 2009.

[84] ADF&G, Division of Wildlife Conservation. 2012. Status of Wolves in Southeast Alaska. October 2012.

[85] Lowell 2013. Powerpoint: Feasibility Assessment for Intensive Management in a portion of Unit 3 (providing updated harvest information and showing low pellet densities in northern complex islands).

[86] While the DEIS does acknowledge the linearity problem in a brief sentence ("The deer model is a linear model and as such has limitations") and only in the Subsistence section [DEIS at 237], it fails to discuss this problem or take it into account in any way in the analyses in that section or the ones on deer and wolves. Moreover, the DEIS takes into account factors that may tend to cause the model to overestimate carrying capacity, but fails to disclose and fully and fairly discuss the several that tend to cause it to underestimate carrying capacity. [See, e.g.: Exh. D-34 (Gillingham 1997); Exh. D-45 (Kiester & Eckhardt 1994); Exh. D-62 (Person 2001); and 634_0579 (Person et al. 1997)].

needed to ensure an adequate supply of deer for both wolves and hunters.[87] In this case, and given the non-linearity of the system (not recognized by the deer model) and the known low deer population, a seemingly small decline further decline in carrying capacity (e.g. by the 0.3 deer/mi² stated in the DEIS at 92) could well prove catastrophic for the deer population and the deer/wolf/hunter system. Accordingly, the scale of the project is inappropriate, and the project must be terminated.

3. Comments on road density related impacts to AA wolves

Our previous scoping comments requested a detailed discussion of the impacts of increased road density on wolves in the project area. The construction of significant additional roads will increase road density. 2004 road densities were 0.64 mi/mi² on Wrangell Island as a whole, with high road densities at the watershed scale. [634_0842 at 3-20 (Shady EA/FONSI), 634_0121 at 61 (WIA)]. Notably, portions of Wrangell Island (the entirety of WAA 1903) identified as otherwise having the highest quality wolf habitat have road densities higher than 1 mi/mi². [634_0844, Appx. B at B-43 – B-44 (Wrangell Island Roads Anal.)]. In particular, the Pat and Salamander Landscape Units have road densities of 1.38 mi/mi² and 1.23 mi/mi² respectively, causing Forest Service planners to identify a concern about impacts to wolves. [634_0121 at 21, 27 (1998 WIA)]. The proposed action would significantly increase road densities – island-wide – to 1.5 mi/mi² across the island. [DEIS at 93]. Most of the wolf take in GMU 3 occurs in close proximity to communities. [634_0844, Appx. B at B-44]. Yet the DEIS never provides any information about trapping effort on the island, or where it occurs.

4. The DEIS analyses for "NFS-only" lands are of the wrong scale for direct & indirect impacts to wolves

A further problem is that the DEIS engages in an analysis of direct and indirect impacts to wolves on the basis *only* of National Forest System lands (*i.e.* "NFS-only"), both regarding deer carrying capacity and road density. [DEIS at 91-92, including Tables 19 & 20]. This results in a scale of analysis that is not supported by the science, because it has been determined that analysis needs to be performed on a whole WAA because that approximates the size of a wolf pack home range. [634_0575 (Wolf Cons. Assessment); 634_0579 (Person et al. 1997); Exh. D-62 (Person 2001)[88]]. There is a considerable amount of non-federal land on Wrangell Island (WAA 1903), and when they are not included the analysis results are unrealistic and meaningless. Analysis that in unrealistic does not comport with the purpose and requirements of NEPA.

Wolf analysis needs to be atypical of the commonly used direct/indirect/cumulative sequence of analysis that is commonly used for timber project issues on the Tongass National Forest, because of the pack size related habitat use by wolves. The direct, indirect and cumulative impact assessments all need to work at the same scale in this case (i.e. "all lands"). The direct effect is distinguishable from each other by the element of time (immediate vs future), but the indirect and cumulative effects can meld into one that looks both forward and backward in time. NEPA accommodates doing the analysis in this a way, to fit with the reality of this species habitat use, and it leaves no kinds of impacts unconsidered. In

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[87] The sustainability of wolf populations and the provision of habitat to support a deer population that will meet the needs of hunters are intertwined. If deer populations are low, some hunters will kill wolves in an attempt to compensate, and this amounts to a double-whammy on wolves – direct mortality, on top of mortality from starvations due to low prey numbers.

[88] Replacing the incomplete, poor-quality copy in the planning record.

contrast, the direct/indirect analysis in the DEIS gives false impressions and has no place in an EIS.

To the extent that doing the analysis here may conflict with the 2011 deer modeling directive, the directive needs to reexamined and modified.

5. Be aware that there are flaws in the recent Archipelago Wolf ESA listing decision

In further work on the WIP project, the Forest Service should bear in mind that there are key flaws in the recent Endangered Species Act (ESA) listing decision for Alexander Archipelago wolves (*Canis lupus ligoni*). In January 2016, the U.S. Fish and Wildlife Service (FWS) issued a listing decision finding that Archipelago wolves were not threatened throughout all or a significant portion of their range. That decision was based on the conclusion that none of the existing threats to Archipelago wolves threaten their continued existence throughout southeast Alaska and coastal British Columbia. The decision also concluded that the Prince of Wales (POW) Island wolf population did not constitute a distinct population segment (DPS) or a significant portion of the range (SPR) of the entire Archipelago wolf subspecies.

First, there were a number of key flaws in the FWS' decision. The agency erroneously combined wolf populations in Game Management Units (GMUs) 1 and 5A — spanning from Dixon Entrance to Yakutat along the mainland (but including some major islands) — for analyzing gene flow and threats. That combination minimizes the existence of serious habitat problems in GMU 1A, which has seen extensive logging. The FWS also used a flawed road density threshold, mistakenly believing that the recommended threshold was 1.5 miles per square mile,[89] when unsustainable mortality can occur at road densities of 0.7 miles per square mile "or less." [Person & Russell 2008 (769-05-0525); TLMP S&G XIV.A.1(c)].

Among emerging issues with the listing decision, are these (briefly):

- FWS used an unjustifiably low predation rate (15 deer/wolf/year) in modeling the predator-prey dynamics and determining wolf population sustainability;
- FWS treated future winter severity as a controllable variable (but it will be what it will be), using different values for different the scenarios. Each severity level should have been run for each model scenario;
- FWS relied, except on POW, on ungulate food sources "other than deer" but failed to analyze the density and distribution of those sources of prey;
- FWS assumed that wolf migration is unidirectional into GMU 2, contrary to unconsidered science that it is in the opposite direction.

Secondly, the FWS failed to apply the proper analysis under the ESA regarding whether Prince of Wales (POW) Island constitutes a significant portion of Archipelago wolf range. The FWS also failed to analyze the southeast Alaska population as its own DPS and the POW Island population as a SPR of that DPS.

A new listing petition could raise these issues.

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[89] As noted in the previous section, the Forest Service correctly interpreted the meaning of this metric, in the DEIS. But as also noted above, the 1.5 value for the metric (a saturation point where adding to the road density might not increase mortality) is specific to one part of Prince of Wales Island, and elsewhere the value may differ.

D. Comments on analysis of impacts to Queen Charlotte Goshawks (QCGs)

There are significant uncertainties about the current status of goshawk populations and the adequacy of nest protection measures. Our scoping comments requested that the DEIS undertake site-specific analysis of impacts to habitat in the vicinity of known nest areas given significant scientific concern about eliminating important foraging habitat in the vicinity of known nests. [*See e.g.* 634_0860 at 18.][90] The findings of FWS status reviews and prior risk assessments, as well as other recent studies, demonstrate the risks of continued and serious population decline associated with further loss of habitat caused by old-growth logging.

The DEIS acknowledges that the project likely will affect the fitness and breeding potential of project area goshawks due to reduced foraging capacity. [DEIS at 89]. But it then states that although project alternatives may adversely impact individual goshawks, but would not likely result in a loss of viability on the island or cause a trend toward federal listing. [DEIS at 87]. The DEIS justifies this analysis in part based on the absence of known goshawk nests within proposed harvest units. [*Id.*]. The DEIS also references the amount of remaining old-growth on federal land, which at large scales exceeds the identified threshold requiring that more than 50% of the landscape consist of more than 50% old-growth and mature second growth. [*Id.*].[91] However, within some value comparison units (VCUs), the amount of total productive old-growth forest (POG) has been reduced by logging nearly to that landscape-scale threshold. An important factor of this loss is that less than 40% of the historical high-value POG remains. [*Id.* at 89]. Future timber extraction on non-federal lands would result in further reductions that were not quantified in the DEIS. [*Id.*]. The DEIS also suggests that uneven-aged harvest may reduce effects, [*id.*], even though this assumption has been questioned in more recent scientific studies specific to Queen Charlotte goshawks, as explained in the following sub-sections.

Even though Wrangell Island likely hosts a critical portion of the remaining goshawk population in southeast Alaska, the DEIS does not indicate whether surveys were done and does not even disclose the relationship between historical nest sites and surrounding areas. The historical nest sites may be essential to the species but were not considered. The DEIS simply does not justify or explain its conclusions on the project's effects, and ignores relevant scientific analyses or known problems with goshawk viability in the project area. The Forest Service needs to prepare a revised DEIS that provides an adequate hard look under NEPA and reconsider whether it is possible to implement this project while meeting the agency's obligations to maintain species viability.

1. QCGs are a small and vulnerable population and Wrangell Island QCGs are a significant portion of this population

QCGs are a small, isolated and almost certainly declining population. Both compositional analyses and radiotelemetry studies show that breeding pairs of QCGs "in managed landscapes of southeast Alaska likely rely almost entirely on productive old-growth forests as foraging and nesting habitat" to meet life history needs and avoid second-growth or non-forested habitats." [634_0861 at 7 (Smith 2013)]. Intensive clearcutting in southeast

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[90] Northern goshawk *Accipiter gentilus laingi* Recovery Team. 2008. Recovery Strategy for the Northern Goshawk, *laingi* subspecies (*Accipiter gentilus laingi*) in British Columbia. Prepared for the British Columbia Ministry of Environment, Victoria, B.C. 56 pp.

[91] The DEIS needs to explain this threshold; as discussed in the following subsections, goshawk experts identify a 60% old-growth threshold to meet breeding requirements.

Alaska "has converted many watersheds to very low quality habitat, or non-habitat, for goshawks. Loss of this habitat has likely contributed to at least local declines in QCG populations." [634_0683 at 81 (FWS 2007 QCG status review)].[92]

Population levels are unknown. According to the Fish and Wildlife Service, southeast Alaska may support just a few to several hundred breeding pairs. [Id. at 48-49].[93] Survey efforts during the 1990s identified only 62 known nest areas, concentrated in significant part (44% (i.e., 27/62)) in the central portion of the Alexander Archipelago (Stikine District). [634_0863 (Flatten et al 2001)].[94] By 2005, experts had identified only 72 unique nest areas, with most of them reportedly inactive, and new nests were not being found. [634_0658,[95] slides 9–12 (2006 CSR QCG panel)]. In sum, there are unknown but small and vulnerable QCG populations on the Tongass National Forest, raising substantial questions about the possibility of significant adverse environmental impacts arising from the Wrangell Island Project on the few remaining breeding pairs.

QCGs select primarily for very highly to moderately productive old-growth (250 years or older). [Exh. D-42(a) at 36-37 (Iverson et al. (1996) QCG conservation assessment)]. There is very little use of low productivity forests, and QCGs actively avoid clearcuts, non-forested areas, and "mature sawtimber" stands (75 – 150 year old stands). [*Id.*]. The Fish and Wildlife Service's 2007 status review explained that QCGs in southeast Alaska are highly vulnerable to additional stresses —– because of the low population level, "low survival or reproductive rates could not be sustained long before viability of the subspecies would be at risk." [634_0683 at 8-9 (FWS 2007)]. Further, a 2005 study of QCGs on the Haida Gwaii concluded that QCGs experience more breeding failures than other northern goshawks, and raised the concern that "at the present rate of productivity, insufficient young are possibly being produced to allow the population to be maintained." [634_0858 at 1-2 (Doyle 2005)]. Doyle's study identifies a number of risks that were highly relevant to the analysis in the DEIS, including risks associated with low productivity, specific flaws with the use of the high probability foraging habitat methodology and uncertainties about using different timber management prescriptions to mitigate population effects:

> (1) QCGs produce few young fledglings per breeding attempt relative to other northern goshawks, and were possibly not producing sufficient young in the study area (Haida Gwaii), raising the question of whether small insulated island populations with low breeding rates can maintain a viable population;
>
> (2) successful breeding may require **greater than 60% productive old growth**;

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[92] This document is the Fish and Wildlife Service's 2007 status review; as it is usually included in timber project administrative records we do not submit separately and expect that it is already or will be part of the record for the DEIS.

[93] The FWS does note that based on one model, habitat in southeast Alaska could "potentially support" higher numbers of QCGs, but that model overestimates habitat capability by considering territories with as little as 20% old growth as suitable. In fact, QCG breeding and activity is unlikely to be detected in a landscape with less than 60% old growth. [Exh. 21 (Doyle 2005)]. Also, designated Wilderness and roadless areas are unlikely to support QCG populations or buffer population losses caused by timber harvest. [PR 572_1148 at 26 (Iverson et al. 1996].

[94] *Cautionary Note:* This paragraph correctly contains references documents with similar-appearing numbers (634_0683 and 634_0863).

[95] Forest Service. 2006. Conservation Strategy Review: An assessment of new information since 1997. Northern goshawks on the Tongass National Forest – summary of study findings related to forest management. Powerpoint presentation from Tongass CSR Workshop.

(3) *because of an absence of nest activities outside of known nests, it is unreasonable to rely on measurements of highly productive habitat as goshawks are not being detected in those areas;*

(4) raising uncertainties about the effectiveness of a variable retention approach.

The DEIS failed to analyze the particular vulnerability of Wrangell Island QCG populations, their habitat needs and relevant risk thresholds. There are a number of historical known goshawk nests on Wrangell Island – but the DEIS makes no effort to disclose the location of those nests in relations to past and future timber units. Central Alexander Archipelago QCGs – potentially among the most important remaining populations - are particularly at risk relative to other areas managed by the Forest Service. The DEIS failed to review the Forest Service's 1996 Conservation Assessment which included a risk assessment that identified areas with harvest rates exceeding 13 percent by 1995 or 33% by 2055 as presenting "a higher risk of not providing the amount and distribution of habitat necessary to sustain goshawks" [Exh. D-42(a)(b) (Iverson et al. 1996; Iverson & DeGayner 1997)]. Where do Wrangell Island VCUs fit within these risk thresholds? [96] Further NEPA analysis must address and answer these questions.

In sum, there are significant uncertainties about immediate and long term risks to Wrangell Island QCGs, and consequently, the viability of the species throughout southeast Alaska. Further NEPA analysis consider the population status and particular vulnerabilities of project area QCGs, and that recognizes uncertainties about the viability of the population, particularly in response to further logging in the vicinity of known nests.

2. The DEIS failed to evaluate and disclose responsible scientific opinion raising serious questions about the TLMP conservation strategy

Closely related to the question of current Queen Charlotte goshawk population status and risks is the issue of whether current TLMP standards and guidelines and the conservation strategy effectively sustain viability. For example, federal and state wildlife agencies believe that measures implemented in the 2008 TLMP Amendment will reduce conservation standards and necessitate a reconsideration of the 2007 status review. [2008 TLMP FEIS, Appx. H at HA 14, 17, 39]. A subsequent study by one of the region's leading goshawk experts identified uncertainties pertaining to whether TLMP conservation measures provide the habitat features necessary to sustain well-distributed goshawk populations across the Alexander Archipelago. [634_0861 (Smith 2013)].[97] Smith's review follows several other important studies that provide important information about Queen Charlotte goshawk habitat needs and breeding success.

Dr. Smith's analysis indicated that under the TLMP risks to goshawks are likely even greater than anticipated under the 1996 risk assessments. [*Id.* at 6]. Specifically, the 1996 risk assessment assumed that the TLMP conservation strategy, particularly the reserve system, would in part mitigate habitat loss from excessive timber harvest. [*Id.*]. However, Dr. Smith's study indicates that contributions from reserves and other conservation elements (buffers) "might not mitigate the cumulative habitat loss in intensively managed landscapes." [*Id.*]. Dr. Smith added that there is "evidence on nearby islands that extensive loss and fragmentation of habitat from clearcut logging contributed to population declines of QCGs." [*Id.*]. Dr. Smith's analysis explicitly stated that TLMP standards and guidelines "are unlikely

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[96] *See* TLMP Administrative Record, Document # 1376.

[97] Smith, W.P. 2013. Spatially explicit analysis of contributions of a regional conservation strategy toward sustaining northern goshawk habitat.

to meet breeding-season habitat objectives established for goshawk populations" in other areas. [*Id.,* citing Reynolds et al. 1992 (634_0552); 634_0859 (McClaren et al. 2005)[98]]. In a 2012 letter to the Forest Service regarding the Big Thorne Project, Smith explained that these findings "increase[d] uncertainty about conservation measures contributing sufficient habitat to sustain well-distributed viable populations of [QCGs]." [634_0862[99] at 5 (Smith 2012)]. Specifically, Smith's study showed that:

- TLMP conservation measures contribute about half the secure habitat recommended for post-fledgling areas of breeding pairs in other portions of the northern goshawk's range
- Guidelines for northern goshawk populations in other areas may underestimate habitat needed by goshawks s due to limitations in prey resources
- Breeding pairs in southeast Alaska "likely rely almost entirely on productive old-growth forest as foraging and nesting habitat as few mammal species inhabit low-volume or managed forests and the structure of second growth stands renders prey unavailable to foraging QCGs. [(Exh. 45 at 6-7].

Another recent study, Sonsthagen et al 2012 [Exh. D-74],[100] also is relevant to the analysis of cumulative effects and site-specific impacts. Sonsthagen et al indicate that a metapopulation framework actually suggests a heightened need for specific individual nest site protections because without those, the individuals would blink out, resulting in the loss of source populations and over time, the metapopulation would cease to exist.

In sum, Dr. Smith's study in particular identified significant uncertainties and adverse risks to QCGs associated with the inadequacy of the TLMP conservation strategy that contradict assumptions made in the DEIS. Further NEPA analysis should discusses and respond to Smith's analysis of the conservation strategy, and assess the implications of Sonsthagen's discussion of metapopulations.

3. The DEIS needs to address the effects of the Wrangell Island Timber Project on Queen Charlotte goshawk habitat features through appropriate scales of analysis

Our scoping comments requested that the environmental analysis specifically consider prey availability and other features such as alternative nest sites for project area goshawks. The 1996 conservation assessment found that a "broad scale of analysis fails to consider distribution of habitat throughout southeast Alaska," [D-42(a) (Iverson et al. 1996); 634_0858 (Doyle 2005)(explaining that it is unreasonable to rely on habitat measurements outside of known nests)]. We are also concerned about using impacts to high-probability nesting habitat as the primary metric for impacts to goshawks. This approach masks degradation to specific goshawk foraging habitat caused by logging in the vicinity of the

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[98] Mclaren, E.L. et al. 2005. Northern Goshawk (*Accipiter gentilis laingi*) post-fledgling areas on Vancouver Island, British Columbia. J. Raptor Res. 39(3): 253-263 (recommending that "[m]ultiple PFAs within one goshawk home range should be managed to create an area that maintains connectivity among alternate nests and to adjacent stands of similar habitat (i.e. reduce stand isolation) to minimize possible edge effects, facilitate food transfers from adults, and provide dispersal corridors").

[99] Smith, W. 2012. Big Thorne Project Comments (November 6, 2012).

[100] Sonsthagen et al. (2012) was cited in our 2015 WIP scoping comments; however, it was not included in the exhibits list in those comments, is not in the planning record, and therefore likely was not submitted then. It is provided now as Exh. D-74.

nests. A site-specific analysis is possible and will generate a more accurate evaluation of impacts to goshawks. For example, the Forest Service has in the past evaluated timber projects by considering impacts to foraging habitat and disruptions within a 6,000 acre foraging area surrounding each nest. [634_0839 (S. Lindenberg FEIS 1997)]. The DEIS essentially ignores site degradations because they are too small to affect the accomplishment of habitat measurements at the WAA scale.

But the DEIS arbitrarily relied on broad habitat measurements by VCU. Notably, the potential loss of habitat in some VCUs at even this scale implicates serious viability concerns. [DEIS at 90, Table 18]. We suspect the loss of habitat by nesting and foraging areas would be even more serious, but the DEIS never evaluates cumulative habitat loss at an appropriate scale.

Dr. Smith's findings and other studies should have triggered the need for analysis of foraging habitat, alternative nest sites, and other habitat features. For example, the absence of sufficient prey, particularly mammals, can lead to food stress and starvation. [634_0683 (USFWS 2007)(identifying a number of females on Prince of Wales Island that died of starvation during a 2002 study)]. The DEIS should analyze whether the project itself provides for alternate nests and post-fledgling habitat. Dr. Smith's findings concluded that the TLMP strategy prescribed the reserve-based approach despite insufficient local information, and that "[m]ore importantly, the 1997 TLMP did not incorporate the concepts of nest area, post-fledging area, and foraging area habitat management that underpin the current paradigm of conservation planning to sustain viable populations of northern goshawks." [634_0861 at 7]. Thus, "[p]lanners and managers may want to revisit assumptions that current standards and guidelines and other conservation measures provide sufficient breeding system habitat." [*Id.*]. The DEIS ignored the 3 hierarchical biological components, "all of which need to be considered simultaneously in land-use planning or mitigation: … 1) nest area; 2) post-fledging (family (PFA); and 3) foraging area." [634_0862 at 5; *see also* Exh. 43]. Dr. Smith's review of the scientific literature showed that the majority of a PFAs should provide, at a minimum, 60% old growth forest. [634_0861 at 6; *see also* 634_0862 at 4(finding that the mean proportion of POG in nest areas was 71% when excluding nest trees on clearcut sites or natural features creating an abrupt forest edge (e.g. shorelines)].

In sum, the DEIS failed to disclose and respond to Dr. Smith's study and other risks identified in other relevant studies, including additional site-specific and quantitative analysis of habitat features required by goshawks, and consideration of effective mitigation measures.

4. The DEIS needs to consider cumulative impacts to southeast Alaska QCG populations

Because there were serious concerns about QCG viability throughout the Alexander Archipelago, this project implicates serious concerns about the viability of the species across its range. The effects determinations in the DEIS failed to consider the significance of the project and cumulative impacts in terms of goshawk viability in a critical portion of its range on the central and southern Tongass. Given the low population numbers and known distribution of the species, the cumulative effects determinations should have involved consideration of <u>three</u> relevant spatial scales: regional, central southeast Alaska island ecosystems, and, as previously discussed, the cumulative effects of logging in the vicinity of known historical nest areas on a small and vulnerable population. Analysis at relevant spatial scales is particularly important in light of the ESA listing of the QCG in Canada because of the metapopulation structure of QCGs and conclusions that contributing

populations in British Columbia have declined, resulting in increased risk to the metapopulation.

Further NEPA analysis needs to review the locations of known nest areas and consider the impacts of other projects. Nearly half of the historical goshawk nest sites lie within the jurisdiction of the Petersburg and Wrangell Ranger Districts. Currently, the Mitkof Island Project, Tonka Project, Navy Project, Kake-Petersburg Intertie Project and planned state of Alaska logging on Mitkof and Kuiu Island all occur in the vicinity of known nest areas.

In sum, the cumulative effects analysis in the DEIS must consider how the Wrangell Island Project, in combination with recent and planned projects that log in the vicinity of PFAs and foraging areas associated with known historical nest sites throughout southeast Alaska, threatens QCG viability in light of the low population of the species, and the importance of individual breeding pairs in the project area to the broader persistence of the species.

5. Address TLMP sensitive species mandates by developing adequate mitigation & alternative nest management measures

TLMP standards provide that "[s]pecial consideration should be given to the possible adverse impacts on habitat of sensitive, threatened and endangered species." [2008 TLMP at 4-89]. We requested consideration of mitigation/alternative nest management measures as required by the TLMP, such as increased buffers for nests and increased forest structure retention requirements in the vicinity of known goshawk nests.

The DEIS analysis failed to demonstrate this special consideration of goshawk habitat and viability because all it did was provide broad measurements of POG reductions.

Because the DEIS never shows where the cutting units are in relation to historical nest sites or observations of goshawks, it is impossible to assess the extent to which the project will reduce foraging habitat or remove potential alternative nest sites. It was necessary to review the Biological Assessment to confirm that the Forest Service is aware that there are three nest territories – but even the Assessment failed to describe the landscape surrounding those territories. [634_1101 (2016 biological assessment)]. In other words, the analysis is so incomplete that it is impossible to provide meaningful comments about how to mitigate impacts. Are cutting units within the scientifically recommended 500 acre buffer?[101] There is no way to know. Further NEPA work needs to include a site-specific habitat quality analysis that takes into account all available information on differential utilization of various forest types and structures.

During the 2008 TLMP Amendment process, ADF&G, the FWS, and the Forest Service's Pacific Northwest Research Station each recommended, at a minimum, a 500-acre buffer as needed to minimize risks to QCGs. The TLMP required the Responsible Official to "[c]onsider surrounding landscapes when managing for goshawk nest sites" and provide for alternative nest management measures as appropriate. [TLMP at 4-99]. This project area with its high levels of past logging and fragmentation *exemplifies* the type of landscape that requires

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[101] The record shows this was raised to the IDT by former project biologist Jill Reeck: "500 acres would address alternative nests. FP standard is 100 acres." [634_0294, May 16, 2012 meeting notes]. There is no record of a resolution. Under the aegis of a different project biologist, the January 7, 2013 meeting agenda notes: "Raptor nest buffers. Additional protection. Alt 2, use wildlife biologist's recommendations; Alt 3, use FP existing requirements; Alt 4 use FP existing requirements." [634_0016]. Whether this was ever adopted or carried through to the DEIS three years later and how Alternative 5 was treated is unknown.

alternative nest management measures in order to adequately implement the Forest Plan guideline.

6. The DEIS ignored known risks to project area goshawks and failed to provide survey and nesting data for QCGs and evaluate nest and breeding failures

Our scoping comments requested that the DEIS disclose the location of any known current or historical nests and any other observations of goshawk habitat use, including information about foraging habitat. There have been QCG observations on Wrangell Island. [634_0121 at 16, 28, 33 (1998 Wrangell Island Assessment)]. Our review of Wrangell Ranger District EAs and other analyses raise serious concerns about QCG breeding and nesting failures on the island. The DEIS should include a discussion of possible reasons for these failures. Please also indicate how many surveys have been conducted and describe the survey methodologies. For example, there was an active nest found in the Shady project area, with a failed nesting attempt in 2001, and no successful nesting activity since that time despite goshawk observations in the project area (surveys done 2000 – 2003). [634_0842 at 3-15 (Shady EA/FONSI)].

E. Comments on Impacts to other MIS

Our scoping comments requested that the Forest Service provide comprehensive analysis of project impacts on other project area MIS and consider adopting measures that will mitigate adverse impacts such as increased buffers, increased forest structure retention requirements and effective road closures. We requested that the DEIS document surveys for wildlife species present in the project area and then discuss the locations and the species preferred habitat uses. We also requested that the analysis do more than a quantitative assessment of productive old growth losses at various scales. In particular, we requested consideration of specific types of old growth forests that are valuable to old-growth dependent species.

In general, the cumulative loss of key habitat features — and in particular for black bear, marten and other MIS such as endemic voles and interior forest birds — on Wrangell Island is alarming, and it is hard to see how there will be sufficient habitat available to maintain well-distributed, viable populations of existing native species in the planning area [TLMP at 4-89]. The DEIS also raises serious questions about the project's inconsistency with numerous TLMP goals and objectives for wildlife, which range from maintaining sufficient habitat capability needed to provide opportunities for hunting, trapping and wildlife viewing and preventing species from being listed as sensitive due to degraded habitat conditions. [TLMP at 2-1 – 2-9; 4-89].

1. Comments on impacts to black bears

Our previous scoping comments noted that over a third of the high value summer bear habitat on Wrangell, Zarembo and Etolin islands has been damaged.[102] In its most recent game management report on black bears, ADF&G has continued to express concerns about habitat changes from logging. According to that state agency, "timber harvest poses the most

[102] *See, e.g.* Exh. D-13, Carstensen et al. 2007, The Wrangell/Zarembo/Etolin Province), Ch. 4.18 in Schoen & Dovichin (2007), Audubon/TNC.

serious threat to black bear habitat in [GMU 3] over the long term." [634_0845 at 96 (ADF&G 2011 Black Bear Management Report)].[103]

Black bears are an umbrella species with large area requirements and varied habitat uses. The health of black bear populations can be an indicator of overall ecosystem integrity. The 2008 TLMP FEIS explains that "[b]lack bears were chosen as an MIS because of their importance for hunting and for recreation and tourism." [TLMP FEIS at 3-233]. There is considerable uncertainty about actual black bear populations on GMU 3 islands but clear indicia of a general population decline. [634_0845].

Our scoping comments requested that the DEIS disclose impacts to high value bear habitat – low-elevation, old-growth forest with abundant and productive salmon streams - and discuss how much summer black bear habitat and denning habitat will be lost because of this project. We also requested an analysis of human caused disturbances to bears, particularly those related to roads and summer habitat loss and thinning activities near streams during spawning season. Finally, we requested that the DEIS recognize the impact of canopy closures and resulting loss of understory vegetation and habitat value for bear and consider impacts on forage availability due to impending canopy closures in past and future clearcuts.

In general, we are concerned about the project's impacts to black bear viability in light of these concerns, and the analysis in the DEIS did not adequately address potential adverse impacts. Please address the following issues in further NEPA analysis with regard to the viability of the black bear MIS and include site-specific analyses of impacts to black bears by alternative:

1. We requested that the DEIS clarify whether black bear foraging areas will receive additional protections, citing experts recommendations for 500 foot riparian buffers to meet foraging needs. Our scoping comments requested that the DEIS carefully evaluate expanded riparian buffers for black bears and evaluate the recommendations of the recent studies on the importance of riparian buffers to bear populations.[104] The Forest Service or other landowners have already removed nearly 20 percent of historical old-growth habitat within 500 feet of Class I streams in the project area. [DEIS at 28]. The TLMP does not delineate specific buffers for black bear but does direct that riparian buffers be increased from the standard buffer to 500 feet in important brown bear foraging areas. Black bear are more secretive than brown bear and should receive additional protection. The availability of spawning salmon as a food resource is a major influence on bear habitat quality and bears have the highest vulnerability to human activities in low elevation riparian areas during summer months.

   We thus requested that you consider enhanced 500 foot riparian buffers for bear as a project mitigation measure. The DEIS indicates that Alternative 5 would reduce timber removal impacts "in areas with higher specific wildlife values such as 500-foot no harvest buffers on streams that have brown bear feeding." [DEIS at 20]. It suggests that Figure 7 (Alternative 5) displays those buffers – if so, the display is

[103] Lowell, R.E. 2011. Unit 3 black bear management report. Pages 96-117 in P. Harper, editor. Black bear management reports of survey and inventory activities 1 July 2007-30 June 2010. Alaska Department of Fish and Game. Project 17.0. Juneau, Alaska.

[104] Flynn, R.W.; S.B. Lewis; R.B. LaVern & G.W. Pendleton (2007). "Brown bear use of riparian & beach zones of N.E. Chichagof Island: Implications for Streamside Management in Coastal Alaska." Alaska Dept. of Fish & Game, Douglas, Alaska.

unclear. The DEIS thus provides little clarity as to the extent to which class I streams will have only the minimum 100 foot buffer and fails to ensure that black bear foraging areas will receive additional protections pursuant to 2008 TLMP guidance and the recommendations of regional bear experts. Wildlife experts recommend implementation of the 500 foot buffer for bears on both sides of class I streams regardless of whether or not there have been project field observations of an absence of anadromous fish.

Further NEPA analysis needs to apply 500 foot riparian bear buffers on all class I streams. The failure to include this measure in any action alternative means that the Forest Service has failed to consider its statutory mandates to take a hard look at adverse impacts to bear or meets its NFMA obligations to provide for wildlife viability.

2. We further requested a discussion of impacts to bear habitat at a fine scale, and requested that the DEIS do more than catalog old-growth removals at broad scales. Black bears repeatedly use specific habitats, and even small stream reaches may be important, thus triggering a need to identify high use riparian areas. [Exh. D-59 (Peacock 2004, Ch.3)].[105] In general, 100 foot buffers are inadequate to meet bear foraging needs. Studies of brown bear riparian habitat utilization found that: (1) 500 foot riparian buffers should be applied "universally to all salmon streams"; (2) a 1,000 foot buffer would provide for 73% of female bear riparian habitat use in lightly altered landscapes and (3) 1,000 foot buffers are appropriate in areas where management objectives include healthy, abundant bear populations for hunting and viewing. [Id.].

   For the above reasons and due to the significant cumulative impact on bear foraging habitat, we reiterate our request that you consider expanding riparian bear buffers and evaluate this measure as a mitigating measure in the DEIS.

3. Old-Growth Forest Dependency: The DEIS should include information about black bear utilization of and impacts to large tree old-growth forest, which is the most used habitat type by all bears in all seasons. Our scoping comments explained that wildlife managers are increasingly associated black bear habitat with large-tree old-growth and expect population declines to correlate with reductions in this specific type of habitat.

4. Denning habitat requires further analysis: The DEIS provides no analysis of denning habitat and simply states that there are no known dens within project cutting units. The analysis fails to disclose that black bears in southeast Alaska select for specific denning habitats, meaning that further NEPA analysis should consider site-specific features, and avoid clearcutting in areas that provide suitable denning habitat. [Exh. D-23 at 1306, 1313-1314 (DeGayner et al. 2005)]. There is considerable re-use of existing den sites, which may indicate in part a lack of adequate alternative sites. [Exh. D-22 (Davis et al. 2011)]. In light of the likely importance of adequate den sites to black bear survivability and reproductive success, further analysis and consideration of mitigation measures are needed.

   Black bears have been found to nest or den in cavities high off the ground in tree boles, on Prince of Wales Island. [Exh. D-88 (Woodford 2015)]. This was a recent discovery, and it is quite possible that this habitat use occurs on Wrangell Island as

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[105] "Quantification of black bear use of salmon streams" in Southeast Alaska. Chapter 3 in: Peacock (2004). Population, Genetic and Behavioral Studies of Black Bears Ursus americanus in Southeast Alaska. Dissertation. Univ. Nevada. http://www.carnivoreconservation.org/files/thesis/peacock_2004_phd.pdf

well. The referenced article explains concern over these and other bear denning or nesting resources:

As a wildlife biologist managing a population of black bears, [Boyd] Porter said the take home lesson is that existing dens are a valuable resource that should be protected if possible. That's especially important in areas that are logged. Not only are the dens removed (the trees that create the dens) in the logging process, but the other old trees that could potentially become den sites over time are also removed.

He paraphrased a statement from a research project in British Columbia, where bears were using root wads and other woody structure as dens, year after year. "If you're interested in managing black bears responsibly, you should be making special allocation for woody structures and insure there are plenty of potential sites available into the future," he said.

"This could help us in terms of comments on timber sale designs and locations," Porter said. "We went to the Forest Service with 50-some recent den locations, and suggested they provide some sort of individual tree protection, or a small buffer around these known bear den sites. We discussed den sites with the Forest Service several times and were encouraged by some positive comments from Forest Service staff initially. However, in the end they did not incorporate our den site protection suggestions for some upcoming large timber sales in the same area. There's nothing in the Forest Plan that says they have to make any allocations for black bear dens."

We urge the Forest Service to take a step back on the Wrangell Island Project and do thorough field surveys for den sites in the unit pool. We also urge the agency to go beyond minimum requirements in the Forest Plan to ensure that these important sites (both present and possible future) are protected and well-buffered.

5. Habitat capability model: Please use the interagency habitat capability model in further analyses in order to systematically assess project impacts to black bears. [TLMP at 4-89].
6. Road density impacts: The DEIS does not adequately address road density impacts to bears. Additional NEPA analysis should be provided.
7. Further NEPA analysis should consider specific riparian habitat needs and discuss site-specific mitigation measures: the extensive rate of past planned harvest in the vicinity of project area anadromous streams is likely to significantly reduce riparian bear habitat and lead to population declines. Access to riparian habitat is a major influence on bear habitat quality and critical to black bear cub production and survival. Bears strongly select for less altered, closed forest riparian habitats. Bears using heavily altered habitats consume less salmon and restricted access to salmon means that there will be reduced survival and fewer hunting and viewing opportunities.
8. Bear population status: Our scoping comments requested that the DEIS discuss current trends in black bear abundance in GMU 3 and disclose indicia of a population decline. Analyze the extent to which intensive habitat alteration caused by logging may reduce carrying capacity for bears and exacerbate other environmental factors contributing to a suspected population decline.

2. Comments on Project Impacts to marten

Our September 2013 scoping comments identified a significant concern about marten mortality on Wrangell Island due primarily to the limited amount of roadless refugia on the island and the large proportion of land area accessible within 0.9 miles of existing roads.

ADF&G noted in 2007 a potential for the population to become "severely depressed," given the high road density at that time. [2013 scoping comments of Greenpeace et al., at 13]. Thus — given the potential for extinction of marten on Wrangell Island, or at least excessive mortality there — we requested that the Forest Service undertake systematic surveys and an in-depth assessment of the status of marten on the island and the potential cumulative impacts on the population that would result from the WIP project.

The DEIS provides no information on current trapping effort or the existing status of marten populations. It relies on overall habitat measurements to assess impacts. [DEIS at 94-96]. It even suggests that existing roadless refugia would be adequate to allow martens to persist on the island despite a clear statement that there is a limited amount of this habitat. [*Id.* at 96]. In sum, the DEIS does not adequately assess habitat conditions for marten, or justify its conclusions. Without this information, it is impossible to evaluate project-level impacts to marten. We request that further analysis address the following concerns:

1. Road density risks need further analysis: The DEIS discusses road density, but fails to identify relevant thresholds or to what extent road density increases would result in the entire population being vulnerable to overharvest. [DEIS at 96]. Further NEPA analysis should provide a more detailed assessment of road density risks, particularly the potential for local extirpations.
2. Further NEPA analysis should include use of the habitat capability model: The TLMP specifically recommends using a habitat capability model for MIS in order to systematically assess project impacts. The need for an interagency model is particularly critical in light of project record materials which make clear that marten populations cannot remain viable at the proposed levels of habitat loss. [*See e.g.* Exhs. D-18 (Cheveau et al. 2013); D-39 (Hargis et al. 1999)(marten cannot tolerate landscapes that are 25 – 30% clearcut); D-20 (Cushman e-a 2011)(marten dependence on forested areas makes them particularly vulnerable to local extinctions); & D-40 (Harper 2010)]. Please include a road density factor when using a habitat capability model as this factor provides a more accurate presentation of cumulative habitat loss which is likely understated using the approach in the DEIS.
3. The DEIS needs to consider forest retention prescriptions for marten: Our scoping comments requested that the Forest Service consider additional retention requirements in clearcut units. The Saddle Lakes area lies within a high risk province for marten but the 2008 TLMP provides for no additional forest retention. The cumulative loss of winter habitat is massive, reducing historical winter habitat by 40 percent across the island [DEIS at 96]. When planned logging will threaten viability, partial harvest aimed at maintaining productivity of small mammals, retaining habitat features for dens and nest sites, leaving substantial amounts of vertical structure are key features that must be considered in further NEPA analysis. [Exhs. D-30 (Flynn 2004); D-31 (Flynn et al. 2004)]. Given this potential impact, further NEPA analysis needs to demonstrate consideration of mitigation measures such as increased forest structure retention in clearcuts.
4. Trapping Refugia and Prey Availability: Further NEPA analysis should include some additional discussion of trapping refugia and prey availability. The analysis would be improved by reviewing the recommendations of expert scientists from the 2006 Conservation Strategy Review Workshop [Exh. D-32 (Flynn et al. 2006)], and considering responsive measures, such as matrix management and enhanced corridors between OGRs.

5. Review updated scientific literature on logging impacts to marten: We have submitted two recent studies – one indicates how marten are one of the most sensitive species to environmental changes, including climate change, and bears on project impacts, [Exh. D-55 (Moriarty et al. 2016)], and the second address how even lighter touch logging prescriptions can adversely affect marten movement patterns and ecological needs, and indicates that partial harvest prescriptions thus can also have adverse impacts and should not be relied on to mitigate project impacts. [Exh. D-10 (Aubry & Raphael 2014)].

3. Comments on the project's impact on the Red backed vole

We are also concerned about the lack of information on the endemic southern red-backed vole. MacDonald and Cook's 2007 publication, Mammals and Amphibians of Southeast Alaska [634_0675], suggests that this species – also known as the Wrangell Island red-backed mouse – may exist solely on Wrangell Island. The DEIS concludes that the species would continue to persist, but fails to provide enough information to support its conclusions. [DEIS at 110]. It does not disclose the current population status of the species or population trends, or explain whether surveys are necessary to assess project level impacts as required by the TLMP. In sum, further NEPA analysis needs to show how the Forest Service intends to comply with Forest Plan standards for endemic mammals and NFMA's viability requirements.

F. Comments on the Conservation Strategy: Fragmentation, Connectivity and OGRs

1. Fragmentation, connectivity and OGRs

The DEIS is incomplete because it lacks a description of the project area OGRs and maps that accurately show current levels of fragmentation and connectivity corridors. The omission of this information, and a review of how the Conservation Strategy is applied on Wrangell Island is a major omission. Previous planning on this project contemplated potential adjustments to old-growth reserves. But a prior scoping notice indicated that because of the pending TLMP Amendment process, "the project will not propose any project-specific Forest Plan amendments." [80 Fed. Reg. at 65692]. Further NEPA analysis should discuss in detail the nature of the proposed changes, and how possible changes to the TLMP conservation strategy bear on the project. The 2015 LRMP Amendment process provided no indication that the Forest Service intends to improve the reserve system on Wrangell Island, and it is arbitrary to rely on that process to avoid site-specific evaluation of potential improvements in the reserve system, or analyze existing shortcomings.

We requested that the DEIS include information regarding past discussions about OGR placement. The reserve system on Wrangell Island is inadequate to meet TLMP acreage criteria for both small and medium old growth reserves. [634_0121 at 62-63 (Wrangell Island Assessment)]. Previous projects have reflected efforts to add acreage to the OGRs to improve connectivity and bring the acreage up to TLMP requirements. [See, e.g. 634_0820 (Doughnut EA). Thus the analysis needs to address how this project would remove habitat that could otherwise be added to improve the reserve system.

The discussion of the OGR system is improperly excluded from the DEIS, and requires review of the wildlife resource report. That report only heightens the need to consider the reserve system, connectivity and fragmentation in the DEIS itself. It is clear that the existing reserve system does not meet TLMP criteria. [634_1102 at 40-45]. It indicates that there are recommendations for improvements, and that efforts to modify the OGRs by adding acreage within IRAs was deemed inadequate by the interagency review team due to the lower quality

habitat within the IRAs. Why, then, is there no consideration of moving acreage from other LUDs in order to address the existing deficiencies with the reserve system? Further NEPA analysis should consider the interagency team recommendations, and acknowledge that under the status quo the conservation strategy is inadequate.

Please include in further NEPA analysis a discussion of past or ongoing TLMP inter-agency recommendations for a project area old growth reserve network. This information is important for the public to understand project level impacts to wildlife. If the existing OGRs differ from the interagency recommendations, the DEIS should provide a map that compares the interagency recommendations to the existing OGRs.

We also note that the DEIS and resource report fail to show how the Forest Service will maintain connectivity among the reserves even under the current configuration. The wildlife resource report does provide a map of existing corridors, but does not display them in relation to past or planned harvest. [634_1102 at 51]. How will proposed cutting units affect these corridors? Further NEPA analysis needs to take a hard look at connectivity issues.

2. The Tongass Conservation Strategy is insufficient regarding deer, wolves & hunting

On February 22, 2016, in our comments on the Tongass Land Management Plan Amendment DEIS, we commented extensively on the failings of the TLMP's conservation strategy to protect deer, wolves and hunters. The comments identified the need for (and requested) an immediate revision and strengthening of the conservation strategy. The problems surfaced in part through a 2006 retrospective memo by the conservation strategy's chief architect, former Forest Service planner Chris Iverson. [Exh. D-43 (Iverson 2006)]. The problems identified in our TLMP comments are applicable to WIP and the project's compliance with NFMA, because the project tiers to TLMP. The problems identified are significant.

In Appendix A we provide in its entirety the section on the conservation strategy from our February TLMP comments. The appendix is intended to be read at this point in the present comments.

G. Cumulative Effects

Our scoping comments requested that those few areas that do provide some level of unfragmented habitat, such as the Earl West Cove area, should be left alone to buffer impacts of past and future timber extraction, particularly in light of pending state timber sales. [See 634_0842].[106] On Wrangell Island across all land ownerships, 10,836 acres of forest have been logged and over 130 miles of road have been built [DEIS at 18 and 7],[107] and the Southeast State Forest Management Plan will add to this [DEIS at 9].[108] The cumulative effects analyses for wildlife also list these projects, but they limit the analysis to the Earl West Cove project and one ongoing federal project. [*See, e.g.* DEIS at 96, 99, 103].

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[106] Tongass National Forest. 2004. Shady Timber Sale Environmental Assessment and FONSI. UDS DA Forest Service Alaska Region at 3-13. Wrangell, AK: March 2004 (noting that the Shady project area contains the largest remaining block of contiguous old-growth forest on Wrangell Island).

[107] The DEIS under-reports in at least three places the land area that has been logged. One is on page 7. Others are in the *cumulative impacts sections* on deer on page 93 and silviculture on page 223 and again on 224, with all reporting only the 6,800 acres logged on NFS lands, instead of on all lands. This appears to be a systematic under-reporting of cumulative impacts!

[108] It lists only the Early West project of 12.5 mmbf , does not it affect timber economics and availability?

The DEIS thus omits several adjacent or on-island logging projects authorized under the state of Alaska's Southeast State Forest Management Plan – for example, the Pat's Creeks and Eastern Passage state forest lands would add another 3,000 plus acres of degraded habitat over time, including lost or degraded deer winter range. The cumulative effects analysis needs to include the full amount of state land.

Additionally, the DEIS fails to analyze the cumulative effects of pending changes to the Conservation Strategy. Specifically, the pending LRMP Amendment would authorize logging riparian management areas and beach fringe buffers that provide essential connectivity between reserves for a variety of old-growth depending wildlife species. This significant weakening of the Conservation Strategy received strong opposition from leading wildlife experts, [Exh. D-46 (Kirchhoff 2015); Exh. D-07 (Alaback et al. 2015)] and warrants disclosure and evaluation in further NEPA analysis.

IV. Comments on Significant Issue 4: Access Management

It is important that the decision to include travel management in this EIS is taken seriously, and that travel management decisions are carefully considered. The scope of the EIS, including effects analysis and the range of alternatives, needs to match the scope of the decision for travel management. It is disappointing that the Draft EIS fails to do so. Travel management seems to have been shoe-horned in to this decision without making the analysis required to make it a good, long-term decision.

The DEIS chooses only two indicators, the miles of road, and percentage changes in cost, for the travel management issue. [DEIS at 144]. Those indicators however fail to capture the enumerated regulatory factors in 36 CFR 212.55(a), or provide a reasonable basis for the decision.

A. The agency has not done the required scientific roads analysis

A few pages in the transportation resource report notwithstanding, the DEIS and project record entirely fail to implement the road regulations by conducting a scientific roads analysis.

The project record includes meeting notes from a March 4-8, 2013 travel analysis review. This process apparently is the basis for the new travel management recommendations. The notes include a table listing changes, although many roads do not have any reason at all for changes. We find it impossible to comment meaningfully on a black-box process such as that.

The agency used five units of measure to analyze this issue: miles of (1) open road (2) motorized trail (3) closed road (4) designated for decommissioning, and (5) percent change in road maintenance costs. These units of measure are geared only towards timber sale design and timber roads. The decision being made however involves a variety of other factors, including access for things like recreation and subsistence. The factors considered should be broader and should, at a minimum, encompass the range of considerations in 36 CFR 212 and under the Forest Plan.

The travel management regulations are directly at issue here. 36 CFR 212.5(b) says:

(b) Road system—

(1) Identification of road system. For each national forest, national grassland, experimental forest, and any other units of the National Forest System (§ 212.1), the responsible official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible official must incorporate a science-based roads analysis at the appropriate scale and, to the degree

practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

(2) Identification of unneeded roads. Responsible officials must review the road system on each National Forest and Grassland and identify the roads on lands under Forest Service jurisdiction that are no longer needed to meet forest resource management objectives and that, therefore, should be decommissioned or considered for other uses, such as for trails. Decommissioning roads involves restoring roads to a more natural state. Activities used to decommission a road include, but are not limited to, the following: reestablishing former drainage patterns, stabilizing slopes, restoring vegetation, blocking the entrance to the road, installing water bars, removing culverts, reestablishing drainage-ways, removing unstable fills, pulling back road shoulders, scattering slash on the roadbed, completely eliminating the roadbed by restoring natural contours and slopes, or other methods designed to meet the specific conditions associated with the unneeded road. Forest officials should give priority to decommissioning those unneeded roads that pose the greatest risk to public safety or to environmental degradation.

Here, the Forest-level roads analysis and District-wide roads analyses were done prior to the 2007 Wrangell ATM plan. The project decision is represented variously as the third tier and as a replacement to the 2007 Wrangell ATM plan. The approach taken by the agency here is confusing. Please provide a clear explanation of the scope and nature of the ATM decision being made here.

The DEIS contains essentially no information regarding roads analysis. Our efforts to dig for the roads analysis in the project record did not satisfy curiousity. The transportation resource report says that during a week in March, 2013, resource specialists conducted a Travel Analysis per 36 CFR 212.5, FSM 7712 and FSH 7709.55. Powell 2015 at 18-19. This "analysis," actually nothing more than a table listing decisions, is contained in an Appendix to that report.

The Roads Analysis appendix

- Takes no account for road maintenance costs or budgets;
- Takes no account of red culverts, roads on steep slopes, roads that are in riparian areas or conservation LUDs, or any other natural resource issues;
- Does not reflect an inter-disciplinary process for decision-making. No resource-specific comments are made, no public process is identifies, and none of the notes and analysis one would expect to find in the project file for a transportation analysis seem to be in the record.
- Took place prior to changing the project to omit the proposed TLMP amendments and the DEIS.

Please give priority to conducting a scientific transportation analysis in accordance with the regulations.

B. Rationally consider a reasonable range of Access & Travel Management alternatives

The relation between the logging alternatives and the access & travel management alternatives is perplexing. It makes no logical sense. Any of the ATM alternatives could be implemented under any of the logging alternatives, with the exception of new road construction. If there is a rhyme or reason to the grouping, it is not stated.The preferred ATM alternative grows apparently from the IDT and Borough, Alternative 3 from the IDT,

Alternative 4 from the "IDT of resource specialists," and Alternatives 1 and 5 implement the existing ATM. How can the IDT recommendation be being followed under different alternatives? How are the IDT and Borough, IDT, and IDT of resource specialists different? Please disclose more completely where these alternatives come from, and what reason there is behind them.

Please consider an ATM alternative that maximizes road decommissioning and brings down long-term road maintenance needs and environmental costs. The DEIS approach is a wholly inadequate consideration of the available alternatives. None of the analyzed alternatives prioritizes conservation or maintenance budgets. That is a critical failure because economics and wildlife are highly significant, alternative-driving issues. The importance of travel management to those issues cannot be considered if no effort is made.

The DEIS and resource report are incorrect that Alternative 1 would "forfeit any opportunity" for future road development, or fail to move the forest towards its desired condition. Powell 2015 at 21. Roads that are needed could still be developed if there were some reason to; no opportunity is being forfeited. It is incorrect to say that the current road system is insufficiently vast, as evidenced by the ATM plan decision to *close* a large number of existing roads.

C. Road Costs are critically understated in the DEIS.

The transportation resource report provides some hard costs related to road development. See Powell 2015 at 20, App. B. New roads come in at $146,559/mile; new temporary roads at $131,523/mile, Reconstruction at $40,000/mile; and reconditioning of stored road at $3,000/mile. This is the sort or hard data that is useful for decision-making, but unfortunately the figures seem to have been plucked out of thin air using a deeply flawed methodology. Regarding maintenance budgets, the transportation report states the annual budget is $140,000. That total maintenance budget figure is then used to determine maintenance cost impacts by dividing it by the total number of road miles, arriving at an average $545.60/mile maintenance cost, then calculating maintenance costs post-implementation based on that average figure.

There are many problems with this simplistic measure. First, it doesn't take account of deferred maintenance. In reality, current budgets and open road miles don't' align exactly. In fact, budgets are *known* to be inadequate currently, so the DEIS projection of budget impacts is *certainly* lower than it will actually be. Second, it fails to account for maintenance costs on closed and stored roads, which are not nothing. Every road requires, at absolute minimum, annual monitoring. While it is a neat rhetorical trick and a nice objective, there is no such thing as a "self-maintaining road." Third, it doesn't account for differences in maintenance costs for different roads. In reality maintenance costs vary depending on many factors (slope, hydrology, gravel quality, distance, traffic, etc.) making some roads far more expensive to maintain than others. These differences are critical to evaluating a minimum road system. These differences are known to the agency and no reason is given why the better information is not being used. By accounting for differentials in maintenance costs the decision-maker would be able to direct limited funds in the most efficient manner. Fourth, the metric is misleading because a decrease is open road miles does not impact road maintenance budgets in so direct a manner. In reality, the district easily spends whatever budget it is given for transportation maintenance, and would continue to do so even under full implementation of the ATM plan.

On top of all those problems there appear to also be mundane oversights in calculation. The calculation of the change in road maintenance costs under alternatives appears not to

account for costs to decommission roads. Ongoing maintenance work and red culvert projects are ignored. Please ensure that the data used is both accurate and reliable.

D. Deferred Maintenance should be specifically disclosed and considered

Please provide some information regarding the delayed implementation of the current ATM plan. Why is the current plan not being implemented? Or if it is being implemented, why has a decade passed without any road decommissioning. There seems to be an implication that lack of funding to close roads is the reason, although this is never addressed. How long does the agency suppose it will take, under a "No Action" alternative, for the existing ATM plan to be implemented?

We are also concerned that implementation of the road decommissioning and closures will be delayed. The DEIS completely ignores this salient factor. The sale itself is a full decade at least, followed by an unspecified number of years during which roads would be left open for local use. Further delays can be expected due to budgeting constraints, logistical issues or other complications. The current ATM plan is about a decade old and still has only been partly implemented. Similar delays are reasonable to expect for the new plan, too. During this extended period of time the road density, and road maintenance costs, will be far higher than is being considered in the EIS. Please consider and disclose this "maximum" road density as it relates to (1) project economics, (2) wildlife effects (particularly the wolf), (3) transportation management and (4) aquatic and fisheries impacts.

The DEIS makes passing mention to deferred maintenance, a long-standing problem on the forest. It is notable that there are currently many more miles of road that are open than intended under the ATM plan. Clearly that plan is not being implemented. Please consider and disclose the reasons why that has not been implemented. It is imperative that the maintenance backlog be disclosed and analyzed specifically.

First, the shortage of maintenance funds is relevant to implementation of proposed mitigation measures. The proposed action, in terms of both the logging project and long-term access management, relies heavily to mitigation measures to, for example, comply with Clean Water Act rules as to fish passage, and implement a variety of protections for essential fish habitat. Watershed impacts here are considered not a significant issue as a direct result of these proposed mitigation measures. Where an agency relies on mitigation to avoid considering a significant issue the result is closely analogous to a "mitigated FONSI," which triggers heightened attention to the practicability of mitigation.

The DEIS and proposed access plan do not admit even of the possibility that planned mitigation (e.g. road decomissioning) will not be done in a timely manner, or will be done incorrectly or poorly. A general "good" record at implementing BMPs is not an adequate surrogate for the necessary analysis.

Second, the maintenance budget backlog is directly relevant to the analysis of the minimum road system under 36 CFR 212.55(a). Available budgets are one of the enumerated factors that must be considered. It is impossible to say what the minimum road system is without this information. The DEIS and transportation reports make the major logical error of simply *assuming* that budgets now are perfectly correlated to need, and work from there to arrive at road costs and maintenance projections. That approach is wholly irrational where, as here, existing budgets are *known* to fall short.

Incredibly, the transportation resource report contains only a single reference to deferred maintenance, in an appendix of definitions. It says:

Deferred Maintenance. Maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to

accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value. Deferred maintenance needs may be categorized as critical or non-critical at any point in time. Continued deferral of non-critical maintenance will normally result in an increase in critical deferred maintenance. Code compliance (e.g. life safety, ADA, OSHA, environmental, etc.), Forest Plan Direction, Best Management Practices, Biological Evaluations other regulatory or Executive Order compliance requirements, or applicable standards not met on schedule are considered deferred maintenance. (Financial Health - Common Definitions for Maintenance and Construction Terms, July 22, 1998)

Powell 2015 at 36. Deferred maintenance *by definition* has consequences that need to be considered.

One major area of deferred maintenance are the red culverts, each one of which by definition is a violation of BMPs and, by extension, the Clean Water Act itself. Despite awareness of the issue for decades, there is no evidence that the agency has made any progress at reducing the number of red culverts.

Related to the problem of deferred maintenance, the DEIS under-counts the private and public cost of transportation facilities for this project. To start with, the road analysis is unclear and confusing. The DEIS indicates that implementing the ATM would decrease annual maintenance costs by 19%, and that the preferred alternative would decrease cost by 4% from current costs, but increase them by 19% as compared with ATM implementation. [DEIS at 148]. Where has the extra 4% come from?

The confusion is magnified by the DEIS failure to use specific information, even though it is available, preferring instead to guess as averages. DEIS never says what the current road costs are, or what the budget is, or what the consequence is if those figures don't match. Those are the most critical factors related to access management and they are central to the minimum road system.

E. Please carefully consider bridge maintenance issues

Table 52 identifies a large number of bridges that are in poor or serious condition. This is a potential concern not only for safety, but also for project economics and travel management. Please disclose the safety status of these bridges in the FEIS and plan to avoid any safety problems. Please also disclose the projected cost to repair and maintain the faulty bridges. That information should be applied to prioritizing roads for decommissioning, and to inform the economic analysis of this project. The transportation resource report indicates that bridges with less than satisfactory rating will require maintenance prior to log haul. Powell 2015 at 5. Table 2 in that report shows three "fair" bridges on the 6270 road, and a "poor" bridge on the 6299. Powell 2015 at 6. Yet the cost to repair these bridges does not appear to have been included among the economic costs of the project.

F. Road decomissioning opportunities should be identified and pursued

The DEIS does not reflect any effort being made to analyze roads for decommissioning. The operating assumption has become that all roads will be "stored." Storage might be the best decision in some cases, but consideration of decommissioning is mandatory under the Forest Plan and the roads regulations at 36 CFR, and needs to be undertaken. In light of the second-growth transition, maintenance budget shortfalls, and negative ecological consequences of existing high road densities, we urge the agency to aggressively pursue road decommissioning.

V. Comments on the Aquatics Resource Chapter

The DEIS identified four significant issues: (1) timber supply and demand; (2) wildlife habitat; (3) scenic quality and (4) access management. [DEIS at 10-11]. Our November 2015 scoping comments explained that Wrangell has undertaken a market-based transition toward fisheries, marine repair and tourism. For this reason, we requested that you consider adverse impacts to fishery resources in your economic analysis as it is unreasonable to exclude externalized costs from the assessment of economic impacts.

Our scoping comments also explained that, in light of the importance of fisheries to the local economy, impacts to aquatic habitat, and particularly fisheries, should be a significant, alternative driving issue. [*See, e.g.* 40 C.F.R. § 1501.7]. Across the biogeographic province, riparian forests have been logged at a much higher rate than is shown by cumulative watershed harvest. The prior landscape analysis identified significant concerns about the cumulative effects on high quality fisheries habitat, particularly on sensitive central Wrangell Island watersheds. [634_0767 at 8, 16, 21-22, 27 (1998 Wrangell Island Analysis)]. Because of the level of past development in this area, the likelihood of increased sediment-yield risks or erosion potential, and the high density of existing and proposed roads along with past maintenance problems, we reiterate request a full watershed analysis be conducted as required by the TLMP. As indicated in the aquatics resource report, the Forest Service has failed to collect baseline data on watershed conditions. [634_1106 (Aquatics resource report) at 38]. The failure to produce a watershed analysis is thus a major omission.

A. The DEIS failed to take a hard look at risks to Wrangell Island salmon populations

The following sub-sections provide more detailed comments on specific issues we recommend for detailed discussion in further NEPA analysis. The DEIS failed to include a comprehensive review of adverse impacts to salmon, and arbitrarily failed to consider alternative or mitigation measures that reduce these impacts. [DEIS at 6 (refusing to consider red pipe replacement as part of the project), 23 (refusing to consider alternatives that would reduce adverse impacts to salmon by deferring timber extraction in heavily degraded watersheds and avoiding road construction)]. Coho and pink salmon are Tongass National Forest indicator species as well as commercially important, [2008 TLMP FEIS at 3-74], and yet the DEIS fails to even include a "fisheries" section, thus demonstrating the failure to take a hard look at adverse impacts to fish. [*Cf.* Exh. D-85 at pdf-p.27 (Kosciusko Final EA, 2015)(showing that the Forest Service reviews impacts to fisheries in a separate resource section in an EA)].

1. The DEIS should have included alternatives that entail no road construction to mitigate impacts to salmon, particularly for sensitive watersheds

We reiterate the previous request from the Center for Biological Diversity's previous scoping comments and request alternatives that do not entail road construction. Road construction is by far the greatest contributor of sediment to aquatic habitat of any forest-management activity. In particular, the Forest Service should have developed alternatives that take care to avoid constructing roads and placing cutting units near high value fish habitat and recreational fishing areas and/or areas heavily impacted by previous timber harvest and road construction activities such as McCormack Creek, Thoms Creek, Salamander Creek and Pats Creek. The cumulative harvest levels and road densities in some of these watersheds are alarming, and yet the DEIS fails to even provide any analysis of how these impacts will reduce salmon productivity. [*See* DEIS at 3-170-171].

We also requested that further NEPA analysis disclose and consider scientific studies that have found strong negative correlations between logging road density and salmon productivity.[109] 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* …. 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.[110]

These findings reflect a significant number of scientific studies showing that logging and road construction activities will harm fishery resources that are most important to TLMP local and regional economy objectives.

2. Analyze cumulative watershed effects of previous, ongoing and future state logging projects

Additionally, there are significant questions about regulation of logging practices on state of Alaska and private timberlands in the project area. The DEIS failed to evaluate the impacts of state and private logging projects on Wrangell Island and analyze whether the Alaska Forest Resources and Practices Act: (1) provides adequate riparian buffers; (2) allows operations within those buffers that degrade salmon habitats; (3) allows for operations on high-risk landslide areas or (4) adequately limits cumulative watershed effects and road densities.[111]

3. The DEIS failed to consider an alternative or mitigation measure that addresses fish passage concerns

Our previous scoping comments expressed concern about the number of culverts on Wrangell Island that are currently inadequate for fish passage. The TLMP clearly recommends that the Forest Service undertake measures to ameliorate the past and ongoing damage done to the fisheries economy, [TLMP at 4-10 – 4-13], but the DEIS failed to develop appropriate mitigation measures. There were 46 failed culverts on Wrangell Island in 2007, including five red pipes identified as "urgent" for replacement due to blockage of more than 500 meters of upstream habitat in Class I streams. [634_0844, Appx. B at B-22 – B-23

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[109] We request that the Forest Service obtain, and include in the planning record, Firman, Julie C., et al.. 2011 Landscape models of adult coho salmon density examined at four spatial extents. In: Transactions of the American Fisheries Society, 140:2, 440-455. 2011. Available at: http://dx.doi.org/10.1080/00028487.2011.567854.

[110] 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.

[111] See, e.g. 76 Fed. Reg. 35755, 35766-67 (June 20, 2011).

(Wrangell Island Roads Analysis)].[112] Failed culverts on Road 6267 alone block over 7 miles of spawning habitat, and even red culverts identified as moderate priority for replacement cumulatively block over 3 miles of spawning habitat. [*Id.* at B-23 – B-24]. While the Wrangell Ranger District's ATM EA recognizes that failed culverts have negative effects on aquatic habitat and identifies studies establishing a correlation with decreasing fish densities, it cites an absence of research in southeast Alaska as creating some uncertainty about the extent to which failed culverts are harming aquatic species. [634_0843 at 3-20-21 (Access Travel Management Plan EA)]. Thus, even though the ATM EA notes that "[t]he most substantial direct impact of road on fish species is through the presence of red pipes, which can prevent migration of fish," the ATM included no alternatives that specifically addresses repairing red pipes. [*Id.* at 3-21]. The suggestion that there is uncertainty about the extent of harm to fish species arising from fish passage blockages is unreasonable, and the DEIS should review scientific information that addresses this "uncertainty" and develop an alternative or mitigation measure that would fix fish passage problems.

The ATM EA identified planning for a separate program that would be used to repair the culverts. [*Id.* at 3-21]. What happened to that budget? The ATM EA disclosed a cost of $2,710,028 for fixing fish passage problems on the Wrangell Island road system, but noted that there is no maintenance budget for funding fish passage problems. [*Id.* at 3-60]. Instead, fish passage problems are merely "a factor in determining the cost-benefit for a road" that affects decisions whether to close or decommission a road. [634_0844, Appx. B at B-52]. As this project encompasses the entire island, we requested that the DEIS include a comprehensive update of the ATM and road analysis, which are now nearly a decade old. The DEIS should have reviewed the level of culvert installation and repair over the past decade and indicated the costs of past and future repairs and whether there are suitable funds reserved to ameliorate road construction impacts from this project.

The DEIS states that the Forest Service did perform surveys to determine the number of stream blockages, and yet this number is not disclosed in the DEIS. [DEIS at 3-158]. Information about red pipes is critical to the analysis of impacts to salmon, and further NEPA analysis needs to include a discussion of stream passage concerns. The only information about red pipes is inappropriately included in the resource report rather than the DEIS. The resource report itself is incomplete; it does identify 38 red and 4 gray stream crossings that are unsuitable for fish migration, but nowhere discloses the amount of miles of stream habitat blocked, or indicate any plans to fix these red pipes – even though such an effort would better meet the Forest Service's local and regional economy goals and objectives much more effectively than the proposed action which authorizes timber harvest by what are likely mostly out of state loggers for foreign processors. Instead, through mitigation measures that emphasize red pipe replacement, the Forest Service could employ any of the numerous local workers from the road construction industry on a project aimed at supporting local, market-based industries. The agency clearly has the capacity to implement such a program as part of a logging project. [*See* Exh. D-85 at pdf-p.119 (2015 Kosciusko Vegetation Project Draft Decision Notice and Environmental Assessment) (planning to fix all red pipes on federal lands in the project area].

We thus reiterate that the DEIS must consider a mitigation measure that restores fish passage in the project area. 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. [634_0856 (amici curiae brief of Pacific

[112] Forest Service. 2006. Wrangell Ranger District Roads Analysis. USDA Tongass National Forest, Wrangell, AK: August 2006.

Coast Federation of Fishermen's Associations, 2014); D-25 (Court decision in US v. State of WA)]. 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 briefly 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." [634_0856 at 14-16].[113] We believe that fixing these problems is an obligation under the Clean Water Act and Alaska state law, and that there is a NEPA obligation to develop an alternative or mitigation measure that prioritizes the remediation of fish passage problems.

4. The DEIS ignored stream temperature concerns

Our scoping comments requested that the Forest Service acquire baseline stream temperature data and develop a stream temperature monitoring plan for Wrangell Island. We also requested that you seek out updated scientific literature regarding the impacts of vegetation removals at multiple scales on stream temperature and the effectiveness of riparian buffers and discuss this material in the DEIS. The DEIS mentions Alaska water quality standards and acknowledges that logging can increase stream temperatures, but makes no effort to explain how these impacts increase risks to project area fish populations. [DEIS at 167]. The analysis thus omits an important factor necessary to analyzing project impacts, and we request that a revised DEIS include a full analysis of risks of stream temperature increases and how those increases reduce salmon productivity.

5. The DEIS failed to disclose how LTFs will adversely impact fishery resources

The DEIS indicates that the Forest Service intends to allow for in-water log storage at the Pats Creek and Earl West Cove marine access facilities. [DEIS at 140]. There has not been a benthic dive survey at either facility since 2001, with the historical surveys showing levels of bark accumulation in compliance with permit conditions. [*Id.* at 140-141]. The discussion of adverse impacts to marine resources is incomplete – the DEIS fails to disclose potential harm to salmon, crab and other marine species, or consider how LTF operations will interfere with the more valuable commercial fisheries. [DEIS at 3-176-177]. It relies solely on dive surveys to mitigate impacts of in-water log storage, and never discloses that the Forest Service could require Alcan to take measures to clean up its mess or consider prohibiting in-water log storage altogether. [DEIS at 178].

Additionally, as noted in previous comments on LTFs from retired ADF & G habitat biologist Ben Kirkpatrick, the authorization of log rafting operations should include a review and replication of previous southeast Alaska studies. [634_0850;[114] *see also* 634_0857].[115]

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[113] Amici curiae brief of Pacific Coast Federation of Fishermen's Associations and Institute for Fisheries Resources, 2014.

[114] ADF&G comments the Use of Alexander Bay as a Log Storage Facility for the Tonka Timber Sale. 2012.

[115] Log Transfer and Storage Facilities in Southeast Alaska: A Review. PNW-GTR-174, 1985.

It is almost certain that Alcan will utilize the LTFs because of the project's design for an off-island purchaser. [634_0842 at 3-42 (Shady EA/FONSI)]. We thus have significant concerns about the environmental impacts of in-water log storage in particular. The Pats Creek LTF occurs in the vicinity of fishing grounds for commercial and personal use species including salmon, shrimp and crab. [*Id.*]. Over 127 MMBF was transferred at this LTF dating back to the 1960s, and the previous permit did not require monitoring. [Id.]. The Earl West LTF was constructed in the early 1980s and roughly 30 MMBF of timber has been transferred through it, and there are no monitoring requirements, no information available on marine life, or the biological productivity and diversity of the area. [*Id.* at 3-43]. This project could likely involve higher timber volume transfers through these LTFs at a more intensive rate than past use, heightening our concerns about adverse environmental impacts.

The TLMP recognizes the importance of ensuring that log storage facilities not impair other business and recreational activities. It requires that the Forest Service "[a]void, where 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." [TLMP at 4-85]. 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." [TLMP, Appx. G at G-2]. We request that further NEPA analysis reflect new surveys to document baseline conditions, and specific topics identified in the following discussion.

(1) Evaluate adverse impacts to fishery resources: The existing LTFs overlap with important local fishing areas, creating conflicts with existing commercial and other fisheries. It is well known that log storage degrades water quality below levels necessary to protect existing commercial fisheries. As recognized by other resource managers and scientists, 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.[116]

(2) Evaluate impacts to marine traffic, safety hazards, and interference with fishing operations: Log staging activities will disrupt a variety of fishing activities and create safety hazards for recreational and marine traffic because of the much higher

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[116] *See e.g.* **(1)** 634_0848, Washington Dept. of Fish and Wildlife. 2008. Management Recommendations for Washington's Priority Habitats and Species: Dungeness Crab; **(2)** 634_0866 (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); **(3)** Exh. D-58 (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); **(4)** Exh. D-54 (Morado, O'Clair & Sparks. 1988. Preliminary Study of Idiopathic lesions in the Dungeness crab, Cancer magister from Rowan Bay, Alaska); **(5)** Exh. D-55 (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); **(6)** 634_0849 (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).

log escapement rate associated with in-water log storage facilities. [634_0847].[117] Meaningful guidelines should also consider impacts to marine traffic in terms important anchorages and travel routes.

(3) Discuss and ensure adequate monitoring and mitigation: There should be an effort to develop and implement a pollution prevention plan and to prepare a proposed remediation plan. LTF monitoring requirements should be "site-specific and determined by such factors as volume, site characteristics, life of project, and type of operation, because these factors may determine the extent of environmental impacts." [TLMP, Appx. G at G-10]. Timber operators in British Columbia employ site deactivation procedures in order to minimize long-term impacts. [634_0846; _0847].[118] The Washington Department of Fish and Wildlife recommends replanting marine vegetation and removing woody debris in order to mitigate LTF effects on crab. [634_0848].

6. The DEIS failed to disclose the external costs of logging in terms of lost fishery resource production

Our scoping comments requested that that the DEIS include economic losses in the economic analysis. In particular, the DEIS needed to evaluate losses associated with lost fishing revenues caused by logging and road construction. Habitat loss has a substantial impact on the commercial fisheries that are an important component of Wrangell's market-based transition. It is possible to estimate the loss of salmon related economic values caused by logging and related road construction. [634_0852; _0853; _0854].[119] 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). [634_0854]. A 1988 study identified significant economic losses to salmon fisheries caused by logging and road construction on just 21% of the Siuslaw National Forest.[120] The author noted that even "while improved timber harvesting practices of leaving buffer strips and use of better road design have reduced the extent of fisheries losses, there are still substantial 'unavoidable' losses associated with timber harvesting." 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

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[117] Triton Environmental Consultants, Ltd. An Overview of Water Based Log Handling on the North Coast of British Columbia.

[118] B.C. Log Handling Practices

[119] 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; Knowler, D. et al. 2001. Valuing the quality of freshwater salmon habitat – a pilot project. Simon Fraser University. Burnaby, B.C.: January 2001; 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.

[120] 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.

times the forgone timber asset value of the land. [634_0855].[121] Similar significant external costs associated with the Wrangell Island project need to be specifically addressed in the economic analysis.

We note that this project was initially estimated to generate a mere $70,000 in revenue per MMBF – or $1.3 million at an estimated public cost of $5.9 million. [634_0832 at 3, 17].[122] Given this substantial loss, further NEPA analysis needs to consider whether economic benefits – for example, fixing fish passage problems as explained in the following section – would better meet local and regional economic objectives.

7. Best available information should be applied to aquatic issues, and data quality should be addressed explicitly.

Please consider and disclose the quality of information that is being used, especially with regard to road condition. The DEIS says that district-wide RCS with GIS were used to generate road and stream data, and that field surveys were done. Both datasets tend to be very incomplete and have varying levels of reliability. When we visited the island last week culvert replacements were actively being done, so obviously this situation is dynamic. It would stand to reason too that if culvert replacements are being done that better site-specific and aggregate information regarding road condition and culverts is available to the agency.

The review of IDT meeting notes suggest watershed issues were given unsteady attention and we are concerned that there may be data gaps. For example, in April of 2014 the team had no hydrology data and there was substantial watershed work to be done. Only a month later, on May 17, 2014, the hydrology work on "99%" done. The aquatic resource report was apparently done prior to some changes in project design and alternatives, making the data and the report's conclusions unreliable.

8. Please take a hard look at sedimentation and peak flow impacts to stream channels and fish habitat

The DEIS says it uses only two measures are used related to sediment: the percentage of the basin that is road, and the number of new Class I and II stream crossings. [DEIS at 158]. With regard to streamflow the DEIS uses percentage change, per Grant (2008). [*Id.*]

Please clarify what units of measure the decision-maker is actually going to apply to the decision. In various places the actual analysis uses different measures (e.g. percentage of basin logged; logged riparian habitat, etc.). The limited units of measure applied in the EIS fail to reasonably capture the issues involved and omit many critical factors.

For instance, the DEIS entirely fails to consider impacts of sediment and increase peak flow on channel condition. Sedimentation is not only a water quality issue, it is

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[121] ECONorthwest. 1999. Salmon, timber and the economy. (Numbers in 1999 dollars.)

[122] As we have explained in numerous comments on timber projects, these cost estimates are inaccurate, and we reiterate requests from previous scoping comments for an improved analysis and disclosure of the public subsidy needed to support these large scale timber projects. *See* 634_0838 (Mehrkens 2012, Tongass Economics 101.

also (primarily, in fact) a problem of stream channel structure and fish habitat. The DEIS indicates that sediment is not a very bad water quality issue because additional sediment would be deposited in pulses and would tend to rapidly drop out of the water column. If additional sediment is not in the water column, however, then that means it is now on the bed of the stream. Depending on site-specific channel type and channel condition that sreambed sediment can have major effects by filling pools used for rearing, and gravels used for spawning. Added streambed sediment that fills pools also tends to make streams shallower and wider (especially where LWD is deficient, as is the case in most area watersheds), which compounds stream temperature impacts of direct sunlight. *See* D-69 (Rhodes Declaration).

Additionally, the DEIS fails to adequately consider sedimentation impacts from roads, quarries and landings. The DEIS analysis of road crossing impacts to sedimentation effects is incomplete. [DEIS at 168]. The DEIS and aquatic resource report erroneously treat the effect of road crossings on sediment as being related primarily to potential for culverts to block and roads wash out. That is only one concern. This incorrect understanding results in a failure to adequately seek to avoid roads that are located close to streams and stream crossings. The aquatic resource report lists roads within 300 ft of streams, and Class I – III stream crossings, and recognizes those things as factors for sediment. Estes at 35 *et seq.* The same report shows the action alternatives increase the amount of road close to streams by over ten miles under action alternatives. *Id.* As explained in more detail by Dr. Rhodes (*See* Exhibit D-69), roads in proximity to streams pose problems for sediment in many ways, including:

- Roadside ditches increase sediment delivery to streams;
- Increased traffic on roads increases sediment generated by roads;
- Roads near streams result in deficiencies of LWD, making other impacts to aquatic habitat (e.g. temperature, peak flow, loss of pools, streambank erosion) that much worse;
- Road near and crossing over Class IV streams also can be major sources of sediment to fish habitat.

9. Cumulative and synchronistic watershed impacts need to be considered

With regard to cumulative effects especially, the long-term harm caused by logging to aquatic habitat needs to be considered in a more holistic fashion. A watershed analysis should be conducted on each of the impact watersheds at the appropriate scale, and that information should be used to help guide the decision.

A particular failure of the chose piece-meal approach is that synchronistic and cumulative effects to habitat are lost. Woody debris deficiencies, sediment, temperature, peak flow, and fish passage are treated separately. The best available watershed science however is to consider these effects as a whole as they relate to site-specific watersheds and stream reaches.

One critical factor, particularly where riparian areas have been logged, are declines in large woody debris. This effect is very long-term; on the order of centuries even where logged areas are thereafter protected. Shortages of LWD have cascading impacts on

watersheds. The impact of sedimentation is compounded in systems where LWD is deficient, for example, because channels lose sediment storage capacity. Stream temperature impacts are compounded by the resulting loss of deeper pools. Impacts from increased peak flow such as scouring and erosion tend to be more pronounced where LWD is deficient. The problem of LWD deficiencies is not solved by TLMP and TTRA buffers for Class III and IV streams. These factors are well known to hydrologists and fisheries biologists, so it is perplexing why that information is not carried through to the EIS analysis. The aquatic resource report for example says:

> Large woody debris in stream channels plays an important role in physical and biological processes by influencing channel width and meander patterns, trapping organic matter, providing storage for sediment and bedload, and forming pools used by fish and aquatic insects for cover (May and Gresswell, 2003; Gomi et al., 2001; Bilby, 1984; Ralph et al., 1994; Beechie and Sibley, 1997). … All of the large, anadromous streams contain many LWD dependant channels. These are typically low gradient, gravel bed channels typical of floodplain (FP) and moderate-gradient mixed control (MM) process groups.
>
> Stream habitat complexity depends on a continuous supply of large wood from conifer riparian forests.

[Endres 2016 at 27]. Given that is the case, these important factors now should be *applied* to the watersheds.

VI. Comments on Silviculture and Plant Resource Sections

A. Comments on Yellow Cedar Decline

We request that further NEPA analysis be done for the WIP project, to: provide a more thorough discussion of the high-grading of red and yellow cedar; consider yellow cedar decline and climate change; and provide information about regeneration in logged areas. Overall, well over one-fourth of the sawlog volume from the selected alternative consists of Alaska yellow cedar and western red cedar, including 10.4 MMBF of yellow cedar. [DEIS at 66]. The 2008 TLMP Amendment FEIS recognizes that cedar decline is "one of the most widespread and important forest problems on the Tongass," making it critical to provide detailed NEPA analysis. [TLMP FEIS at 3-120]. We recognize that agency scientists are actively engaged in research on these topics. For these reasons, we hoped that the DEIS would provide a more thorough analysis and include alternatives that avoid healthy yellow cedar stands. The DEIS references the latest research effort, [DEIS at 218], but fails to disclose its recommendations even though the report breaks down the cedar decline issue into 33 management zones – a scale that would allow for meaningful analysis of impacts on Wrangell Island. Further analysis should address the following concerns:

1. Cumulative Effects of climate change: Further NEPA analysis should revisit projected climate change impacts on yellow cedar through a more thorough discussion and literature review. There are roughly 500,000 acres of cedar decline across the forest, and nearly 13,000 acres with cedar decline on Wrangell Island alone. [DEIS at 218]. Scientists project a 75% decline in the frequency of the species over the next century due to climate change alone. [Hamman and Wang 2006]. As explained in our recent petition for listing the species under the Endangered Species Act, yellow cedar is in danger of extinction throughout all or a significant portion of its range, and further NEPA analysis should disclose and

discuss this risk, particularly in light of the large amount of healthy yellow cedar stands proposed for logging as part of this project.

2. Direct Effects of Logging and Red and Yellow Cedar High-grading: The NEPA analysis should disclose or evaluate the extent to which project alternatives are high-grading both cedar species at multiple scales. As previously noted, this project entails the removal of a disproportionate amount of cedar relative to its prevalence across the Tongass National Forest. The Forest Service has high-graded both cedar species on a geographic scale because timber harvest primarily occurs on southern Alexander Archipelago island ecosystems where there is higher percentage of both cedar species. [Exh. D-87 (Wilson 2002)]. At the project level, the Forest Service then further high-grades both cedar species at a finer scale by selecting project areas with higher than average cedar components, or designating the removal of a greater proportion of cedar than occurs naturally within a project area in order to address timber sale economics. [*Id.*].
3. Cumulative and Indirect Effects of Logging: Further NEPA analysis should discuss the cumulative impacts of logging and cedar decline and disclose indirect effects of logging yellow cedar. For example, the DEIS should also discuss how logging can exacerbate cedar decline by creating canopy gaps that exacerbate the freeze/thaw cycle responsible for yellow-cedar decline by creating conditions that cause more extreme temperature fluctuations. [Exh. D-21 (D'Amore & Hennon 2006)]. It should also consider whether logging healthy yellow cedar stands will reduce genetic diversity and further fragment the landscape, hindering yellow cedar adaptation and migration to suitable areas. [Exh. D-12 (Bunnell and Kremsater 2012)].
4. Regeneration and species diversity: The 2008 TLMP amendment requires the Forest Service to monitor forest health and evaluate silvicultural prescriptions in light of future stand diversity, particularly overstory species such as yellow cedar. [2008 TLMP at 4-70-4-71, 4-14]. The analysis in the DEIS fails to analyze yellow cedar regeneration in any meaningful way. Past regeneration surveys across the region strongly suggest that this project will convert substantial acreage from cedar forests to low-value hemlock forests and further NEPA analysis should revisit the conclusion in the DEIS and disclose likely changes in post-harvest species composition. In particular, further NEPA analysis needs to more clearly identify barriers to regeneration and discuss any recent research. What is the regeneration rate of yellow cedar versus other species in the project area? Have there been any additional considerations with regard to whether the experimental method of using leave trees has been successful? Is natural regeneration so poor that mitigating measures will be necessary? Is deer browse having the same dramatic effect on cedar regeneration as it does in northern British Columbia islands? [Exh. D-76 (Stroh et al. 2008)].
5. Mitigation Measures: Because of the forest-wide significance of this issue and because of the extent of cedar decline in the project area, further NEPA analysis should include alternatives that avoid taking healthy yellow cedar stands. The DEIS should also provide a description of specific cutting units for alternatives that do involve taking yellow cedar and particularly consider whether cutting units occur in areas of adequate soil drainage where cedar decline is less likely to occur. For example, the DEIS discloses that 60 percent of the units had low or no cedar decline, [DEIS at 218], but the fails to disclose the volume and extent of yellow cedar removals in those units or describe site characteristics.

B. Comments on the Sensitive Plants Resource Chapter: Further NEPA Analysis Needs to Revisit Conclusions about Impacts to PLOR 4

The DEIS indicates that 11 occurrences of the lesser roundleaved orchid (PLOR4) in the project area. [DEIS at 187]. Timber extraction and related activities increase risks to the viability of PLOR4, particularly in light of the relatively small number of plants and the species' concentration in the southern Alexander Archipelago island ecosystems. [634_0340 at 17 (Dillman 2008, PLOR4 conservation assessment)]. The northernmost occurrences of PLOR4 are within the Wrangell Ranger District. [*Id.* at 5-6]. The proposed action would remove 2,050 of suitable PLOR4 habitat. In general, we are concerned that project impacts to PLOR4 are inconsistent with TLMP goals and objectives for sensitive species and their habitats and for maintaining viable plant communities and populations. [TLMP at 2-1, 2-5]. We request that further NEPA analysis address the following concerns:

1. Clarify number of affected plants, populations and suitable habitat: The DEIS identifies low to moderate impacts on PLOR4 populations. [DEIS at 190]. Neither the DEIS nor the relevant resource report indicate where the known occurrences were observed, or where suitable habitat exists. In general, PLOR4 associates with medium to high volume old-growth hemlock-red cedar forest types which are heavily targeted for timber extraction in this project. [634_0340 at 15]. Ensuring the long-term persistence of the species requires not just protection of known plants, but also areas of potential suitable habitat. [*Id.;* Exec. Summary]. There is also considerable uncertainty about the abundance and distribution of the species and the validity of survey data. [Exh. D-75 at 7 (Stensvold 2006)]. The sensitive plant biological evaluation indicates that recent survey efforts were limited to 128 acres within the timber harvest pool, and 448 acres within the project area overall. [634_0334 at 4 (Biological Evaluation For Sensitive Plants)]. Further work on the EIS should include a map displaying known locations and suitable habitat so that the public can review where timber units contain suitable habitat, and where the known occurrences are in relation to proposed cutting units.

2. Cumulative effects analysis needs to consider the species range and revisit the conclusions in the DEIS: The cumulative effects analysis should use the PLOR4's range in southern Alexander Archipelago island ecosystems. The DEIS limited the cumulative effects analysis to Wrangell Island without considering the cumulative effects of other timber projects and impacts across the species' range in Alaska. [DEIS at 191]. It concluded that action alternatives would not cumulatively affect species viability without fully incorporating non-federal lands and federal projects in other portions of the species' limited range. [DEIS at 192].

   Revilla provides habitat for a substantial portion of known PLOR4 populations in Alaska. [634_0340 at 9]. There are 71 known populations on Revillagigedo Island and only 291 across the Forest. [Saddle Lakes FEIS at 3-303]. Nearly all of the known occurrences in federally managed public lands are in areas managed for timber extraction. [634_0340 at 16 (Cons. Assessment for PLOR4)]. As explained in a recent letter from EarthJustice to Forest Supervisor Cole, Forest Service employees have concluded that the Big Thorne Project alone would be "likely result in a loss of viability in the [Big Thorne] Planning Area, or in a trend toward federal listing." [Exh. D-26 (EarthJustice letter to Cole, on PLOR4, 2014]. If the Big Thorne Project was believed to have such a result, it is hard to see how the Wrangell Island Project could do anything other than add to this risk given the

species limited range and numbers and the plans for further logging on Revilla. Further NEPA analysis should disclose and respond to the materials from the Big Thorne planning record. [Exhs. D-36; D-37 (Greenpeace analysis of PLOR4 decisionmaking for Big Thorne, and documentation)].

3. TLMP Standards and Guidelines: The TLMP requires the Forest Service to consider protection measures for sensitive plants, including partial retention of forest structure. [TLMP at 4-41]. Although the DEIS lack clarity on the relationship between specific units and identified suitable habitat, it appears that We note that action alternatives would include clearcutting of units with known PLOR4 suitable habitat. [*See, e.g.* DEIS at 190]. We believe that all units with PLOR4 populations or suitable habitat should be eliminated from further consideration. However, at a minimum, the Forest Service should ensure that no clearcutting occurs in suitable habitat, and design affected units with partial removal prescriptions that avoid suitable habitat.

4. Indirect and cumulative effects – climate change and indirect logging impacts: The climate change section in the DEIS is limited to a brief discussion of cedar decline and greenhouse gas emissions and does not discuss how climate change will affect other forest resources in any meaningful way. The cumulative effects analysis should provide a more thorough discussion about risks to PLOR4 associated with changes in solar radiation and hydrologic regimes and climate change. [634_0340 at 17]. The failure to include climate change in the cumulative effects analysis for this species was a major omission.

C. Comments on Silvicultural Prescriptions

Previous entries have clearcut large blocks of forest – nearly 6,800 acres, [DEIS at 224], to the detriment of old-growth dependent species and salmon runs. According to the Silviculture resource report (p. 7), a disproportionate amount of these clearcuts occurred in low elevation, high volume POG. Further NEPA analysis should consider the following concerns:

1. Justification for clearcutting: The justification for clearcutting in the DEIS reflected an emphasis on increasing stand volume for further entries and timber economics and arbitrarily failed to demonstrate consideration of other forest resources. Clearcuts are only acceptable "in exceptional circumstances" and when these exceptional circumstances exist, the Forest Service must closely examine effects on other forest resources. [*Sierra Club v. Thomas,* 105 F.3d 248, 251 (6th Cir. 1998); *Ohio Forestry Ass'n v. Sierra Club*, 523 U.S. 726 (1998)]. The NFMA requires that clearcuts occur "in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, esthetic resources, and the regeneration of the timber resource." 16 U.S.C. § 1604(g)(3)(F)(i)(v). The TLMP also recognizes that clearcutting should be limited only where "essential" and requires that prescriptions consider multiple resource objectives such as biological diversity and scenic integrity. [TLMP at 4-71-4-72]. However, the justification provided in the DEIS relied primarily on considerations related to factors related to the commercial viability of the stands such as hemlock dwarf mistletoe. The DEIS needs to revisit the justification for clearcut prescriptions by incorporating the requisite consideration of other environmental values, particularly as described in our comments pertaining to wildlife and aquatic habitat. We would note, in particular, based on our review of the unit cards, that there are several clearcut units placed adjacent to very recent clearcuts

from 2011 and 2012, creating larger areas that will enter the stem exclusion phase concurrently. Further design should eliminate these units, or at least provide for lighter touch prescriptions.

2. Steep slope logging: The Forest Plan removed slope gradients of 72% or more from the timber base because of high risks but leaves an exception for approval of steeper slope logging on a case-by-case basis. [TLMP at 4-65]. The DEIS disclosed that action alternatives will include 268 acres of steep slope logging and 1.34 miles of road on steep slopes, but it failed to provide detailed analysis. Studies show that it is difficult to assess landslide risks and that even partial cut helicopter harvests does not eliminate these risks, particularly at higher elevations. [Swanston 2006]. We request that you observe the recommendations of leading scientists and the EPA and "[p]rohibit harvest from slopes greater than 72%, even if an on-site slope stability analysis has been conducted." [Navy FEIS, Appx. B at B-53]. We request that either eliminate steep slope logging and road construction from the project, or at a minimum provide a more detailed explanation of potential adverse impacts.

D. Climate Change and Forest Management

The Forest Service has recognized that the challenges posed by climate change are "one of the most urgent tasks facing the Forest Service" and "as a science-based organization, [the Forest Service needs] to be aware of this information and to consider it any time we make a decision regarding resource development, technical assistance, business operations or any other aspect of [its] mission."[123]

1. We request that further NEPA analysis consider the cumulative effects of logging, road construction and climate change as part of this analysis and uncertainties about climate change. The DEIS limited its discussion of climate change to brief statements about yellow cedar decline and greenhouse gas emissions and one page discussion of carbon sequestration. [DEIS at 153-155]. But it failed to assess the implications of the changing climate were relevant to project area resources and project impacts. As previously noted, it did not consider climate change in its cumulative effects analyses of impacts on individual wildlife species or watersheds. [*See, e.g.* DEIS at 89, 93, 96, 175]. Every section of the DEIS, including timber economics, should have considered the impacts of our changing climate. There are numerous scientifically credible views pertaining to climate change impacts on Alexander Archipelago island ecosystems and project design prescriptions should have reflected an extra factor of caution due to the projected changes and increased risks to project area fish and wildlife. In particular, the discussion related to the no action alternative should include the merits of maintaining intact forest ecosystems.
2. We appreciate that the DEIS provided a discussion about greenhouse gas emissions associated with the project, but think that the analysis overly minimized the relevance of large scale logging projects by putting project impacts in the context of global emissions. The Ninth Circuit has concluded that the "impact of

[123] Kimbell, A.R. 2008. USDA Forest Service Chief letter to Forest Service National Leadership Team. February 15, 2008.

greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."[124] *Ctr. For Biological Diversity v. Nat'l Highway Traffic Safety Admin.,* 538 F.3d 1172, 1215 (9th. Cir. 2008). As noted in our scoping comments, it is well-established that optimal carbon storage is best obtained by leaving both old and young growth forests intact to the greatest extent possible. Further NEPA analysis needs to provide a more thorough analysis of the carbon cycle as it relates to logging.

VII. Maps

In our 2013 comments, we discussed the need for better and additional maps. Criticized the light colors, showing side-by-side the map presented to the public with one we recolored to make both the past and proposed logging units easily apparent. [634_0146, at 4-5]. We requested that for each alternative maps with unit boundaries overlaying a satellite image be added to the project webpage or in the DEIS, and we embedded example maps in our comments both in plan-view and perspective views, with unit boundaries roughly hand drawn. [Id. at 6-8]. In our 2015 comments we again asked for alternatives maps with vivid colors (like our 2013 example) and that the public be provided with KMZ files for each alternative, so the unit boundaries could be viewed over a Google Earth image.

VIII. Unit cards

We have noted a number of errors and inconsistencies on the unit cards, but are out of time for providing details. The unit cards need a thorough review, and they should include substantially more information on non-timber resources and resource concerns. If necessary, revise the format and type size of the text pages of the cards to provide addition room for this.

[124] *Ctr. For Biological Diversity v. Nat'l Highway Traffic Safety Admin.,* 538 F.3d 1172, 1215 (9th. Cir. 2008).

APPENDIX A – Inadequacy of the Tongass Conservation Strategy regarding deer, wolves, other species & hunting

The following is section VIII.C from our February 22, 2016 comments on the Tongass Land Management Plan Amendment DEIS. It is a critique of the Tongass conservation strategy. It identifies the need for immediate revision and strengthening of the conservation strategy, and it is directly applicable to WIP and the project's compliance with NFMA. Cited references can be found in the WIP planning record or among our WIP comments exhibit submissions from this list (— we have not changed the citations to correlate to the referencing used in our WIP DEIS comments):

Cross reference of citations in this Appendix to today's exhibit numbers & the planning record:

ADF&G 2015	Exh. D-05		Person 2013	*634_0150*
Caouette et al. 2000[125]	In: Exh. D-01		Person 2014	Exh. D-63
Greenpeace 2015	Exh. D-38		Person et al. 1996	*634_0575*
Iverson 2006	Exh. D-43		Person et al. 1997	*634_0579*
Iverson & DeGayner 1997	Exh. D-42		Powell et al. 1996[126]	Exh. D-66
Kiester & Eckhardt 1994[127]	Exh. D-45		Powell et al. 1997[128]	Exh. D-67
Person & Brinkman 2013	*634_0155*		Puchlerz 2002	Exh. D-68
Person & Larsen 2013	Exh. D-60		Suring et al. 1993	Exh. D-77
Person & Russell 2009	Exh. D-61		Suring et al. 1994[129]	Exh. D-78
Person 2001	Exh. D-62		---	---

Issues Concerning Wolves, Deer and Hunting (Including Subsistence)

1. For wolves, the Conservation Strategy Has Been Flawed from the Beginning and Needs Immediate Revision

The DEIS, in stating that the 1997 Forest Plan "established a comprehensive, science-based Conservation Strategy to provide for wildlife sustainability and viability across the Tongass," implies the Conservation Strategy was initially adequate and remains so. (*See* DEIS at 3-207, in the introduction to the Wildlife section). In many other places in the DEIS and Appendix D (which is about the Conservation Strategy), other statements similarly conclude that the strategy was and remains either adequate or conservatively safe. Regardless of these conclusory statements, the records for the 1997 and 2008 Forest Plans

[125] Submitted with our 2011 WIP scoping comments, but omitted from the planning record.

[126] Submitted with our 2011 WIP scoping comments, but omitted from the planning record.

[127] Submitted with our 2011 WIP scoping comments, but omitted from the planning record.

[128] Submitted with our 2011 WIP scoping comments, but omitted from the planning record.

[129] Submitted with our 2011 WIP scoping comments, but omitted from the planning record.

and other materials cited below demonstrate that the Conservation Strategy is in important respects inadequate for fulfilling the requirements of NFMA, and that ever since its adoption in 1997 it has been in need of substantial revision concerning wolves, and other species. [Exhs. 400 & 401 (Powell et al. 1996, 1997); Exh. 414 (Person & Brinkman 2013 at 163-166); Exhs. 403 & 404 (Person 2013, 2014)].

The problems identified below are significant and have allowed much logging over the past 19 years that should have been precluded due to the need for an expanded system of old-growth reserves (OGRs) or other changes to the Conservation Strategy. Correction of the problems is an urgent need in this amendment to the Forest Plan, because the "Tongass transition" which is the amendment's purpose has grave consequences for the Conservation Strategy if not wisely structured. It would be highly detrimental to instead await a future revision or amendment to the plan.

Because the scientists cannot determine what is a minimum viable wolf population, in order comply with the viability requirement of NFMA, the only option for the Forest Service is to instead manage its landbase for the sustainability of each wolf population. Unfortunately, the agency has fallen short in this duty. For wolves, the shortfalls of the Conservation Strategy are rooted in two problems:

a. The design of very large OGRs was arbitrary and insufficient

Very large old-growth reserves ("very large OGRs") were a late addition to the 1997 TLMP's Conservation Strategy. [1997 TLMP FEIS, Appen. N;[130] 2008 TLMP FEIS at D-9, 13, 16-17 & 76; Iverson 2006 (2008 TLMP AR 603_1127)]. The very large OGRs were included in the Conservation Strategy particularly to protect the viability of brown bears and wolves, as an outcome of advice from a formal peer review [Kiester & Eckhardt 1994 (603_0009)] of a draft report by the interagency Viable Populations Committee [Suring et al. 1993 (603_0008)] and the committee's response to the peer review. [Suring et al. 1994 (603_0010)].

From the beginning in 1997, the Conservation Strategy has been neither adequate nor valid for the sustainability or viability of wolf populations because the Forest Service's design of the very large OGRs was arbitrary and insufficient.[131] Moreover, very large OGRs garnered *no mention at all* in the 2015 DEIS or its appendices, even though – for example – the intent of the scientists was that these reserves protect wolf populations, and the Prince of Wales Island area wolf population in known to have declined dramatically over recent years to the present. [See citations in footnote].[132]

Chris Iverson was the point person on the Forest Service's IDT for forming the 1997 TLMP's Conservation Strategy. In consultation to Forest Service biologist Mary Friberg, in March 17, 2006 he memorialized how the strategy was created and finalized in the 1996-

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[130] As revealed in Iverson (2006), Appendix N was created because the 1997 TLMP FEIS had been prematurely published in December 1996 (as well as the Forest Plan volume). Changes made to the Conservation Strategy, and the addition of very large OGRs in particular, would have necessitated wasting those copies are publishing an updated version. Instead, although a new TLMP was published, it was decided to issue the December FEIS and add the Appendix N to provide the necessary update.

[131] This insufficiency likely also applies to the needs of some other species such as bears and goshawks.

[132] Exh. 406 (Forest Service briefing paper); Exh. 407 (ADF&G report, 16-Jun-2015); Exh. 409 (Greenpeace 2015, a critique of Exh. 407); Exh. 419 (Person & Russell 2009); Exh. 420 (Person 2010 message to USFS); Exh. 421 (Person 2012 progress report); Exh. 422 (Person & Larson 2013 report).

1997 period. [603_112].[133,134] This material shows that the way the very large OGRs were designed was arbitrary with respect to ecology, habitat content, connectivity and viability threats — of any species. The Forest Service's main design consideration was that all land in the very large OGRs be land already included in one of TLMP's non-development land designations:

The PNW Peer reviewers recommended 'larger reserves' and 'wider corridors' .... without explicitly stating 'how large' and for what purpose/species and 'how wide' corridors needed to be for what species and what barriers were presented that were not adequately covered in the [draft] TLMP. … So while doing this analysis, ***I approached the [very] large reserve*** *– an unspecified size beyond the VPOP Large 40,000 acre reserve –* ***analysis by taking advantage of all non-development LUDS*** *that maintained the integrity of the old growth forest ecosystem.* ***I had GIS do a dissolve on all Non-development LUDS*** *to identify contiguous blocks of connected old growth forest in each biogeographic province. This is where the Very Large Reserve data and analysis comes from.*

There were no additional land allocations to consciously create the Very Large Reserves *-they just resulted from the synthetic construction of the integrated TLMP. …* ***the Very Large Reserves was simply an outcome*** *and not conscious design to meet some specific objective."*

(Id. at 4, emph. added).

The brown bear and wolf were part of the VPOP analysis that helped design the Large - 40,000 acre and medium 10,000 acre reserves[] as stated above – ***no species habitat needs were explicitly used to design the "very large reserves."***

(Id. at 7, emph. added).

Iverson, in his track changes to Friberg's draft document about the Conservation Strategy (*see* Iverson 2006 at 6-13), reiterated those points and at times referred back to specifics in his message. The gravamen of all of Iverson's remarks is that: (1) peer reviewers of the draft Conservation Strategy noted the additional need for very large reserves to provide for the viability and wide distribution of brown bears and wolves, and the Forest Service acknowledged that need; (2) in designing the very large reserves for the 1997 Forest Plan, the Forest Service did not consider any specific objective (other than being able to claim it has established such reserves) or the needs of any species; and (3) lands zoned for development by the then-draft 1997 Forest Plan were specifically excluded from being considered for inclusion in the very large OGRs of the final plan.

Regarding this third point, *the pre-ordained outcome* of the design exercise for the very large OGRs was that designating them would have zero conservation effect, because development within them was *already* entirely precluded. Clearly, this eventuality was not the intent of the peer reviewers, whose concern was that the addition of very large OGRs is

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[133] The document itself does not describe who it was provided for. The 2008 TLMP planning record index provides this additional information: "Review of Conservation Strategy Review Summary document," originating from "USDA Forest Services, Washington Office," from Chris Iverson to Mary Friberg. Friberg's final Conservation Strategy summary, for which she consulted Iverson, is 603_0007 and dated 3/23/2006.

[134] Iverson's remarks are in both his email messages and his track changes to Friberg's attached draft document, "A Summary of the Tongass National Forest Conservation Strategy" (603_0007), which was finalized on March 23 and provided to panelists for the 2006 Tongass Conservation Strategy Workshop.

needed to protect bear and wolf viability from development. This is *not to say* that very large reserves should be made up *entirely* of lands that, at the 1996-1997 drafting stage, were zoned for development. But as indicated by the second point (i.e., species needs and specific objectives were not considered) the efficacy of the adopted very large OGRs was not judged, nor was the design process that was used capable of judging the efficacy of very large OGRs that would be composed of a mix of lands, some of which would otherwise be zoned for development.

In September 1997, a few months after the 1997 TLMP was issued, the eleven non-governmental peer reviewers (from Kiester & Eckhardt 1994) sent the Forest Service a Joint Statement that pointed out deep flaws in the newly adopted Conservation Strategy, including problems with how the very large OGRs had been designed. [Exh. 401 (Powell et al. 1997)]. Their observations comport with Iverson's (2006) admissions:

The Forest Service has acknowledged the recommendation of the Peer Review …that a significantly larger reserve system be established to protect the remaining large blocks of Old Growth on the Tongass. ***Unfortunately, the Final Plan, which the Forest Service claims responded to this advice, appears to us primarily to change only the descriptions of the reserve system without making the necessary substantive improvements.****. The Forest Service's claim that it has substantially improved its reserve system rests largely, as we interpret the plan, on a redefinition of the reserve system. The Forest Service now describes an expanded system of reserves that includes not only the land in Old Growth habitat status (the former HCAs), but all land in non-developmental land use designation (LUDs). This land is included in the reserve system, regardless of its location or habitat value, simply by virtue of being in a non-developmental LUD (Appendix N-24).*

This new justification of what is essentially the old plan is flawed for many reasons. First, the Forest Service mistakenly assumes this substantial reserve system was unaccounted for in the Peer Review and Joint Statement because these reviews addressed the HCA system in isolation. On the contrary, the V-POP recommendations, Peer Review, and following criticisms of the reserve system, including our Joint Statement in 1996, were all based on the understanding that … that not all Old Growth in lands allocated to logging would be cut, particularly in the short term. The V-POP Final Review Draft itself repeatedly referenced legislatively protected areas, …[etc.]..., "unsuitable " timberlands, and forest stands difficult or impossible to log. The V-POP committee explained that its mapping of medium and large HCAs was adjusted to overlap as much as possible with these lands … ***Indeed, over-attention to locating reserves in already protected areas – at the expense of optimum reserve design – was a major flaw identified by the Peer Review Committee.*** *One of us (Lidicker) specifically noted that most HCAs located in logging zones did not meet minimum size standards (unlike those in areas unavailable for logging). It was with this understanding that the Peer Review and our Joint Statement criticized the proposed HCA system now adopted, and we recommended specific additional protection for remaining blocks of Old Growth and for the important high volume stands.* ***Redefining what a reserve is does not respond to the fundamental issues raised by our Joint Statement and similar critiques. More importantly, the actual changes from draft to Final Plan are only marginal improvements, even if all the non-development areas are treated as Old Growth reserves for wildlife.***

(Id. at 4, emph. added).

Though the FEIS makes it difficult to evaluate the Forest Service's claim to have created improved, very large reserves in each of the 21 biogeographic provinces, this again appears to be more a matter of redefinition than improvement. The Forest Service describes these reserves as composed of contiguous lands in all of the nondevelopment LUDs, presumably including

wilderness areas and other areas protected in the draft.[135] *As the above analysis demonstrates, small HCAs aside, the net changes from draft to final added only a small amount of habitat to the non-timber designations.* ***This strongly suggests that no new very large reserves were created by removing large blocks of Old Growth from the timber base.*** *This appears to be confirmed by the Interrain map showing changes from draft to final Plan.* ***Finally, though the Forest Service argues that these reserves protect a significantly larger amount of Old Growth than recommended in the V-POP report, the comparison is misleading.*** *First, the V-POP recommendations were made with knowledge of the larger areas of old growth protected outside of HCAs and, second, the volume in the newly described reserves is distributed over a much larger area and much of the area protected is not Old Growth.* ***Overall, if, as it appears, these so-called very large reserves are composed largely of areas previously protected and now relabeled, we do not believe these reserves are responsive to the advice of the Peer Review and our previous Joint Statement.***

(Id. at 6, emph. added).

Of the 14 ecological provinces with significant forestland, only 3 have their single largest interior Old Growth block protected from further fragmentation by logging. Moreover, two of the three that are fully protected are the smallest of the entire set of fourteen. … ***This pattern of planned fragmentation extends to other large habitat blocks.*** *Of the three largest such blocks in each province, only 9 of 42 are protected from further fragmentation. Of the largest five, only 19 out of 70 are protected. All others are available for logging to some degree. Blocks of high volume Old Growth forest fare worse under the Final Plan than do the largest blocks of Old Growth. Of the Old Growth blocks in each province with the most high volume forest, only one of the 14 is fully protected. Looking at three in each province, only 9 out of 42 are fully protected.*

(Id. at 7, emph. added).

At about the same time as the Powell et al. (1997) statement to the Forest Service, shortly after the 1997 TLMP was adopted, the principal authors of the 1996 Wolf Conservation Assessment (603_0190) challenged the efficacy of the 1997 TLMP reserves:

The [TLMP] FEIS states that the reserves planned for Prince of Wales, Kosciusko, Mitkof, Kupreanof, and Kuiu islands meet the criteria of the wolf conservation assessment. ***If the deer habitat capability is corrected (Attachment 2) then only one reserve (Tebenkof/South Kuiu) will satisfy our criteria.***[136] *Further, we stated that reserves should be roadless or have human access limited. There appears to be no provision for this in the FEIS. It was our intent that the reserves represent the real safety margin or buffer for wolves in areas as extensively developed as GMUs 2 and 3.*

[Exh. 417 (Person et al. 1997), emph. added)]. In 2013, a peer-reviewed book chapter provided also criticized the Conservation Strategy's reserve system, because the large reserves are not large enough and were not based on thorough ecological evaluation:

A key assumption in the TLMP is that deferred lands are sufficient to conserve viable populations of all wildlife species currently inhabiting the island with little additional

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[135] This refers to the April 1996 RSDEIS that the 1994 peer reviewers critiqued in Powell et al. (1996).

[136] As noted in the next section the modeling was not corrected with respect to the vegetative data set and the model's "deer multiplier" until the 2008 TLMP. Nonetheless, the adequacy for wolves of the reserve system was not given the thorough reexamination the corrections made necessary.

contribution from managed lands. That untested expectation requires evaluation, using monitoring programs and research focusing on its implicit assumptions … For example, with respect to wolves, ***no single reserve or aggregate patch of deferred lands is sufficiently large to encompass an entire wolf pack home range. Therefore, very few wolf packs will be immune from logging, road access, hunting, and trapping*** *… Moreover,* ***selection of reserve lands must be based on thorough ecological evaluation*** *(Murphy and Noon 1992; Lertzmann and MacKinnon, this volume, chapter 8)****, rather than simply selecting lands that have not yet been developed or that are not economically valuable.*** *… In the conservation strategy in the TLMP, oldgrowth forest reserves comprise existing congressionally protected lands and a selection from some of the largest remaining roadless patches of unmanaged forest within the Tongass National Forest (USDA Forest Service 1997a). In extensively logged areas such as Prince of Wales Island, timber harvest targeted the most productive forested watersheds first;* ***therefore, less productive forest often predominates in the unlogged and unroaded watersheds aggregated into forest reserves*** *(Albert and Schoen 2007a). Any strategy to conserve large-mammal predator-prey communities must be able to accommodate their nonlinear dynamics; therefore, they should have large margins for error. In the case of Prince of Wales Island, that includes maintaining as much functionality within the matrix of managed lands as possible,* ***while also*** *maintaining current reserves and* ***adding new high-quality landscapes within reserves****.*

[Exh. 414 (Person & Brinkman 2013 at 163-164, emph. added)]. *See also*: Exh. 403 (Person 2013) at ¶¶8, 34-L & -M; and Exh. 404 (Person 2014) at ¶¶14 and 15; and Exh. Person (2001)].

The Forest Service conducted a week-long interagency Conservation Strategy Review Workshop in early April 2006. A document, "Summary of the Tongass National Forest Conservation Strategy," was among the provided materials for the workshop. Iverson (2006) was an invited review of a draft of the summary. [Friberg 2006 (603_0007)]. As already discussed, Iverson responded with candor about the nature and history of the strategy and its very large OGRs. However, none of Iverson's candor made it into the final document, corrections he made in track-changes, based on his personal major involvement in creating the strategy, were mostly ignored. For example, the draft and final say this:

In general, the home range and dispersal capabilities of old-growth associated species of concern were considered in determining the size, spacing, and number of reserves. For example, Very Large Reserves (21 total) as designed were added to the conservation strategy after considering the large home ranges of the brown bear and Alexander Archipelago wolf (Keister and Eckhardt 1994 and Person et al. 1996 in U.S.D.A. 1997d (p. N-21)).

[Exh. 405 (Friberg draft, in Iverson 2006 at 7); Friberg final (603_0007 at 3)].

In response, Iverson followed that with this in-line comment:

[S]ee my discussion above *[in the body of his email message]****…this statement is not correct.*** *The brown bear and wolf were part of the VPOP analysis that helped design the Large - 40,000 acre and medium 10,000 acre reserves, as stated above -* ***no species habitat needs were explicitly used to design the 'very large reserves'****.*

[Iverson (2006) at 7, orig. ellipsis; emph. added].

The final summary also omitted the important information that Iverson provided, that no lands that had been zoned for development were included in creating the very large OGRs, a direct contravention of the intent of the scientists' opinions. Thus, the CSR Workshop – a prime opportunity for the deficits of the Conservation Strategy to be addressed – was misled. Further, the critical points raised since adoption of the 1997 TLMP by Iverson (2006), Powell

et al. (1997) and others were not disclosed or fully and fairly discussed in the 2008 TLMP FEIS, a violation of NEPA.

This must be remedied in the NEPA document for the current TLMP amendment process, but the DEIS did not do so. Disclosure of this core shortcoming of the reserve system is needed to accord with the agency's duties under NEPA. *See W. Watersheds Proj. v. Kraayenbrink*, 632 F.3d 472, 492 (9th Cir. 2011 (explaining that NEPA requires the agency to "make available to the public high quality information, including accurate scientific analysis, expert agency comments and public scrutiny before decisions are made and actions are taken"). The agency can remedy this error only by issuing a revised DEIS that fully addresses this issue.

Further, from an NFMA standpoint, more than disclosure and full discussion is needed. It is apparent from the foregoing that at a minimum the entire very large OGR component of the Conservation Strategy needs to be redone from the beginning. The agency contends that "the home range and dispersal capabilities of old-growth associated species of concern were considered in determining the size, number and spacing of reserves." (DEIS at D-2). Based on this, the agency believed that the conservation strategy would provide for wildlife viability across the Tongass. (*See id.*). But as is evident from the above discussion, it was *not* species-specific considerations that were driving the size, number and spacing of the very large reserves — considered imperative by the peer reviewers to ensure species viability — *but rather*, simple GIS mapping exercises. Shorn of any scientific basis, this key element of the conservation strategy crumbles. The Forest Service must reconcile this fundamental problem with its wildlife viability obligations under NFMA. Because this is fundamental to both environmental and economic aspects of the plan, we believe this requires preparation of a revised DEIS (RDEIS) after the design is completed, so the public can be informed and can comment.

That this is necessary is exemplified by the steady decline in the Game Management Unit 2 wolf population since the mid-1990s, to an undetermined number than is likely in the low to middle double-digits range.[137] [*See*: Exh. 407 (ADF&G 2015); Exh. 409 (Edwards 2015); Exh. 410 (ADF&G 2011 internal emails); Exhs. 403 & 404 (Person 2013, 2014)].

b. The Conservation Strategy was not revisited after the deer model was corrected

The Forest Service's deer model played an important role with respect to wolves in the development of the Conservation Strategy, including through the Viable Populations Committee's reports, the 1994 PNW peer review (Kiester & Eckhardt 1994), the 1995 to 1997 expert panels[138] on deer and wolves, and ultimately in the 1997 TLMP wolf standard and guideline itself. The Conservation Strategy is partly expressed through the provision for deer as prey for wolves in 1997 TLMP standard and guideline (S&G) XI.A.3, which was replaced with a similar XIV.A.2 in the 2008 TLMP, still carried through into the 2015 draft TLMP.

The 1997 and 2008 S&Gs rely on the habitats' carrying capacity for deer (the habitat's ceiling of deer density) as determined by the deer model, and they establish a threshold value of concern for that. The threshold is a proxy for deer habitat adequacy, and habitat adequacy is in turn a proxy for the availability of deer to wolves and hunters. Thus, the threshold is

[137] I.e. likely lower than the most recent estimate from ADF&G of June 16, 2015 [Exh. 407 (ADF&G 2015)], for fall 2014. See: Exh. 409, Edwards (2015).

[138] Dephi processes conducted by the Forest Service in preparation of the 1997 TLMP.

intended to serve as a Conservation Strategy component for providing a regulatory point for reserving enough deer habitat in an area to sustain a wolf population.[139]

i) Changes in use of the deer model since its adoption in 1997

Changes to how the model is operated were made through a 2002 directive by the Tongass Forest Supervisor and further through the 2008 TLMP amendment process. [Exh. 411 (Puchlerz 2002); 2008 TLMP FEIS at B-31)].[140] In addition, the 2002 directive also changed the threshold value in the TLMP standard and guideline, against which model results are compared. Each of the changes was significant, and retrospectively each one presents implications for how the broader Conservation Strategy (e.g. its habitat reserves) was developed in the mid-1990s, whether the strategy is adequate today, and whether it was adequate in the first place. Those modeling and standard and guideline changes were:

1) In 2002 a modeling component called the "deer multiplier" (the value for the carrying capacity of best quality habitat) was changed from 125 deer/mile^2 to 100. This means that when the Conservation Strategy was created in 1997, old-growth reserves and other strategy components were based on estimates of habitat productivity for deer that were 25% too high. [Exh. 411 Puchlerz (2002); Exh. 417 (Person et al. 1997)].
2) In 2002 the practice of deducting 36% for wolf predation from deer model results was abandoned, since the predation factor is not a habitat feature.[141] [Puchlerz (2002); Person et al. (1997)].
3) In 2002 the standard and guideline's threshold value was changed from 13 deer/mile^2 to 18. This means that substantially more old-growth forest acreage was already in a condition that is adverse for sustaining wolf populations than had been recognized by the late 1990s deer and wolf expert panels and the others who used their advice to create the Conservation Strategy. [Puchlerz (2002); Person et al. (1997)].
4) In 2008 the way the deer multiplier is applied in the modeling was revised. For developing the 1997 TLMP, in an oddity among habitat suitability (HSI) models such as this one, the range of native model outputs was changed to range from 0 to 1.3 instead of the usual 0 to 1.0. These are index values that have no units of measure. The maximum result of 1.3 represents 100% in the range of possible habitat values, or highest value habitat. However, modelers continued to apply the deer multiplier at the 1.0 point in that wider range, meaning that the model was overstating carrying capacity by 30%. This was corrected in 2008 by requiring the native model result to be divided by 1.3 ("standardizing" it) before applying the deer multiplier.
5) In 2008, the model was corrected by substituting the Size-Density Model (SDM) vegetative dataset for the VolStrata one, which had been in use since the mid-1990s. VolStrata was shown in a 2000 Forest Service study[142] to have no correlation to habitat quality. [Caouette et al. 2000 (603_0136)]. Although a better dataset (TimTyp)

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[139] A problem however, as discussed in a later section, is that the standard and guideline is written in unenforceable language.

[140] The changes in 2002 were in an August 6 directive by Forest Supervisor Puchlerz, implementing recommendations in the FY 2000 Monitoring & Evaluation Report. The exhibit appends report excerpts and an MOU to the directive.

[141] From the official scribes notes of the 8-Nov-1995 expert deer panel meeting, presenter Matt Kirchhoff (ADF&G) explained the factor, "Predation effect is trying to get at how many deer will be available to hunters; it has nothing to do with habitat capability." [Ford 1995 (11-JLM-508 at 1597)].

[142] Caouette et al. (2000), "Deconstructing the Timber Volume Paradigm in the Management of the Tongass National Forest," General Technical Report PNW-GTR-482. (603_0136).

could have been used throughout this entire period (id.), the problem was not corrected until 2008[143] when the Size-Density Model (SDM) vegetative dataset replaced VolStrata. The 2008 TLMP FEIS acknowledged that prior to this change, using the VolStrata dataset had caused carrying capacities to be overstated. The change:

> results in an overall reduction in average HSI[144] values because fewer stands would be classified as high and medium volume strata and more stands would be classified as low volume strata compared to the old volume strata mapping used in the 1997 Forest Plan Revision Final EIS.
>
> (2008 TLMP FEIS at 3-365 to 366).

The modeling changes made in Items 1, 2 and 4 (the change in multiplier value and its point of application, and elimination of the predation factor) amount, in combination, to the correction of a 26.5% overstatement of the estimated carrying capacity for deer at any scale of analysis (i.e. the WAA, island, biogeographic or Forest scales). In nearly every WAA (and projecting up to the larger scales). The amount of the overstatement in 1997 was even greater than that because of the correction in Item 5 (substitution of a reasonable vegetative dataset), but because its quantitative correction varies from place to place. (Id.) What these corrections mean is that the mid-1990s expert panels on deer and wolves based their advice and viability likelihood ratings on a gross overestimation of the both then-current and the future[145] availability of deer to wolves and hunters. Furthermore, the designers of the Conservation Strategy's habitat reserve system also based their work in part on the exaggerated model results. Making matters worse, during creation of the reserve system, the use of the incorrect threshold for habitat retention as shown in Item 3 (the level of 13 instead of 18 deer/mi^2 carrying capacity) also set a too low a bar for protecting deer habitat during design of the habitat reserves.[146]

Specific to *Item 3*, Iverson & DeGayner (1997)(Exh. 418 at 15) [147] disclosed the number of wildlife analysis areas (WAAs) expected to pass (or fail) the deer carrying capacity threshold of 13 deer/mile^2, as adopted in 1997 TLMP standard and guideline XI.A.3. Iverson & DeGayner (1997) provided those results for two broad land areas of particular concern. For the POW-Kosciusko[148] biogeographic province, 5 of the 25 WAAs failed. For the area comprised of Kuiu, Kupreanof and Mitkof Islands, 4 of the 18 WAAs failed. However, Appendix N in the 1997 TLMP disclosed that if instead the 1997 TLMP had adopted a standard and guideline threshold of 17 deer/mile^2 (somewhat less that the current threshold of 18 deer/mi^2), the

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[143] We flag here another problem was introduced in the 2008 modeling, although it is not germane to the present discussion going back to creation of the Conservation Strategy. The way non-federal lands were treated, the undisclosed assumptions in the modeling for the FEIS amounted to an assumption that they have the same carrying capacity a Tongass NF lands in the same WAA.

[144] Averaged HSI "habitat suitability index" is the native output of the model, and is a unitless number. It is the direct antecedent of "carrying capacity," which is obtained by multiplying the averaged HSI result by the value of the "deer multiplier." In other words, the quoted statement means the change in dataset resulted in lower carrying capacity estimates by the deer model.

[145] Under the 1997 no-action or action alternatives.

[146] This also helped justify an ASQ that we believe was far too large.

[147] Iverson & DeGayner (29-Jan-1997) report, "Old-Growth Forest Habitat Conservation Strategy: Alexander Archipelago Wolf and Queen Charlotte Goshawk Analyses." *See also* the TLMP FEIS at 3-404.

[148] On western Kosciusko Island the terrain is low-lying, so deer are on the winter range all year. Consequently, ADF&G advised the Forest Service that a deer multiplier of 35 to 40 (instead of 100) should be used. [See: Exh. 416 (Ingle 2002) at 13]. Note that the reference primarily concerns Gravina Island, but also addresses Kosciusko.

failure rates would instead be, respectively, 12 of the 25 WAAs (48%) and 7 of 18 WAAs (39%). The results are compared in Table-1, below.

Table-1: The difference between a 13 and an 18 deer/mile^2 threshold in the TLMP Wolf S&G (for year 2095) (with no other modeling corrections made).

Domain	Number of WAAs	If the S&G is 13 deer/mi^2 (Iverson & DeGayner 1997 at 15)		If the S&G is 17 deer/mi^2 (1997 TLMP Appen. N at 33)	
		Number of WAAs that **fail**	Percentage of WAAs that **fail**	Number of WAAs that **fail**	Percentage of WAAs that **fail**
POW & Kosciusko	**25**	5	20%	12	48%
Kuiu/Kupreanof/Mitkof	**18**	4	22%	7	39%
Overall:	**43**	**9**	**21%**	**19**	**44%**

As Table-1 indicates, the agency should have recognized that changes concerning the model can have significant implications for the Conservation Strategy, including beyond just the standard and guideline. The discussion thus far has been on model-related reasons the Forest Service should have more thoroughly reexamined the Conservation Strategy when it amended the TLMP in 2008. With the strategy now nearly 20 years old, and with logging having gone all those years without that reexamination, this deficit in management has gone on far too long and needs to be addressed in the present amendment process.

The *current* situation is worse than Table-1 indicates. For the WAAs in just one portion of the POW/Kosciusko area, circa 2013, the modeled deer carrying capacity *already* shows 15 (60%) of the 21 WAAs in a smaller portion of the POW-Kosciusko province failing the present 18 deer/mi^2 threshold:

[C]urrently *15 of 21 wildlife analysis areas in the North Central Prince of Wales Island Biogeographic Province are below the guideline deer habitat capability level (18 deer/mi^2) … (Fig. 1). This is a significant reduction in deer habitat capability from historical conditions (Fig. 2).*

[Exh. 404 (Person 2014, formal declaration, ¶3), emph. added; Exh. 402 (Big Thorne deer model results)].[149,150,151] That is worse[152] than the 12 WAAs that in 1997 where expected to

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[149] Note that Figs. 1 & 2 cited in Person's declaration (both are appended to it) do not take into account ADF&G's recommended lower deer multiplier for Kosciusko Island, discussed in the prior footnote.

[150] In the Big Thorne deer model results spreadsheet, *see* tab "Cum Effects FEIS 2013" at lines 97-121. The 21 WAAs are: 1107, 1212, 1213, 1214, 1315, 1316, 1317, 1318, 1319, 1323, 1332, 1420, 1421, 1422, 1525, 1526, 1527, 1528, 1529, 1530 and 1531. The 6 WAAs that equal or exceed 18 deer/mi2 are: 1323, 1525, 1526, 1527, 1529 and 1531. The deer carrying capacity for the whole biogeographic province is 14.6 deer/mi^2, far below 18. Moreover, major recent land selections by Sealaska are in WAAs that currently pass the threshold, and major logging can be expected on those lands.

[151] The statement and prior footnote are for carrying capacity across all land ownerships. Lest there be confusion, the differing result (12 WAAs passing) in DEIS Table 3.10-5 is for National Forest lands only, a meaningless analyses regarding wolves because home ranges span land ownerships.

[152] The difference between the circa 1997 failure rate in the right-hand panel and the current failure rate goes beyond the five corrections listed above. There have also been refinements to the Size-Density vegetative dataset since its adoption in 2008 and the snow zone mapping used in the model.

fail within 100 years (right-hand panel of Table-1), in the whole province and at a more advantageous threshold of 17 deer/mi^2 in the table.

We provide the above information on the Prince of Wales and Kuiu-Kupreanof-Mitkof areas as an example of a root problem underlying the Conservation Strategy, Tongass-wide. In short, the agency has proceeded with a series of fundamental errors that cannot be reconciled with the relevant data. In 2008, and once again with the 2015 DEIS, the agency has failed to explain how its viability determinations — based on a certain understanding of habitat data — can still be valid in light of information showing how that habitat data is fatally flawed. The failure to reconcile the agency's viability conclusions with the relevant data is arbitrary, capricious, and violates NEPA and NFMA. *See Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (agency action arbitrary where agency fails to articulate a satisfactory explanation for its action including a rational connection between the facts found that the choice made).

ii) The cause for the optimism over modeling results in 1997 has vanished; Conservation Strategy reforms are needed.

The point of the previous section is that as successive corrections regarding the model have been made and as logging has progressed since 1997, the cause for the optimism[153] that surrounded the results from the 1997 modeling has vanished. This is not only a matter of how the model results test against the standard and guideline threshold. It is more so a matter of how the overly optimistic results influenced other components of the Conservation Strategy (particularly creation of the habitat reserves) during the critical time of the strategy's genesis, and establishment the 267 mmbf ASQ that was also carried through in the 2008 TLMP.

And now, in the DEIS there is another kinds of optimism — that because full implementation of the 1997/2008 Forest Plans' ASQ will not occur, 253,000 to 280,200 more acres of productive old-growth forest remaining unlogged than those forest plans anticipated. The optimism continues that this will result in some OGRs and non-development LUD areas being surrounded with more POG than was assumed during the design of the Conservation Strategy. [*e.g.*, DEIS at D-5]. Where the saved acres would be located and which OGRs and non-development LUD areas would benefit, and to what extent, is not disclosed in the DEIS. *See Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 973 (9th Cir. 2006) (explaining that "vague and conclusory statements, without any supporting data, do not constitute a 'hard look' at the environmental consequences of the action as required by NEPA."). We presume that the saved acres would tend to be ones from the present timber base that have low value for timber-economic and wildlife, whereas the DEIS proposes to continue with an unjustifiable amount of old-growth logging in presumably higher valuable forest than that.[154]

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[153] As an example of the optimism, the Iverson & DeGayner (1997, Exh. 418) report says this (at 15): "This analysis indicates that after 100 years of implementation of the Revised TLMP, at least 80% of the WAAs on POW/Kosciusko and Kuiu/Kupreanof/ Mitkof will have estimated deer habitat capability densities that meet or exceed 13 deer/mile^2. Thus, for only 20% of the WAAs in this region, there is some elevated risk of either not sustaining current wolf populations (estimated 250-300 wolves), or current annual levels of human deer harvest, or both and there is a slightly elevated long-term risk that any existing current equilibrium may be disrupted." The report documents the creation of the OGR system, with respect to the needs of wolves and goshawks.

[154] We have no reason to believe otherwise. For example, the recent decision to withdrawn the Mitkof Island Timber Sale was based at least in part on "the local industry's concerns with the proposed sale"—i.e. that there was not enough economically viable timber. *See* Direction to Withdraw Mitkof

In place of this unjustified optimism, the Forest Service needs to take a hard look at in what ways and where the Conservation Strategy has fallen short, and how the alternatives will affect the conservation strategy and the species and ecological systems it protects.

As one example, the new optimism runs up hard-up against what is shown by the comparison (*see* preceding sections) of the mistaken 1997 deer modeling to current improved modeling, and the resulting need to reexamine the adequacy of the Conservation Strategy. Although the amount of old-growth logging over the past 20 years and the present intent for future old-growth logging are less than was foreseen in 1997, at that same time the capacity of the habitat for deer was greatly overestimated, and consequently the impacts of logging on deer, wolves and hunters were greatly underestimated during the creation of the strategy. In the DEIS the Forest Service has not taken a hard look at the whole situation regarding wolves, including whether revisions to the wolf standard and guideline or the OGR system are needed in order to provide an adequate prey base for wolves and hunters,[155] an element of ensuring the viability of wolves through sustaining their populations. A "hard look" requires more than a "soft touch" or brush-off of negative effects." *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1241 (9th Cir. 2005). Rather, the agency must ensure that the public receives accurate information regarding the environmental impact of the agency's decisions in order to comply with NEPA's procedural safeguards. *See Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998). The time is now for the agency to confront the serious errors that have eroded confidence in the conservation strategy since its adoption. Only by explaining the conclusions it has drawn from its chosen methodology, and the reasons it considered the underlying evidence to be reliable," can the agency bring the 2016 Plan into compliance with NEPA and NFMA.

iii) Conclusion

The failures of the conservation strategy for wolves are, in consideration of the facts in this section, the converse of the praises for the strategy given by Iverson & DeGayner (1997) in the summary section in their report on what the strategy means for wolves [Exh. 418 at 21]:

The high-likelihood[156] conclusion is based upon the following findings using the Wolf Assessment[157] as a basis of analysis.

1. Habitat reserves in excess of the total indicated in the Wolf Assessment will be maintained on POW/Kosciusko Islands and Kuiu/Kupreanof/Mitkof Islands to provide secure refugia for persistent core wolf packs and increased likelihood of long-term wolf viability. Furthermore, the reserves include high quality old-growth habitat necessary to support the recommended density[158] of 18 deer/mile^2.[159]

Island Decision Notice and FONSI – Nov. 6, 2015) *available at* http://www.fs.usda.gov/project/?project=29099.

[155] Not only is there a need to provide deer hunting (especially for subsistence use), there is link between inadequate availability of deer to hunters (when it occurs) and the poaching of wolves (which is additional to the reported harvest). Therefore the needs of deer hunters must be accommodated in order to "ensure" (NFMA 219.19) the sustainability and viability of wolf populations.

[156] Explained in their introduction as "a high likelihood of maintaining habitats to sustain viable wolf populations". (Id. at 1).

[157] Person et al. 1996.

[158] This is for within reserves, not to be confused with the wolf standard and guideline that has a superficially similar number. It is not a carrying capacity.

2. In our conservative analysis, the deer habitat capability of 13 deer/mile², indicated in the Wolf Assessment to sustain the current wolf population that is in apparent equilibrium between current human deer harvest levels and deer habitat capability, is maintained in 80% of the WAAs on POW/Kosciusko and Kuiu/Kupreanof/Mitkof in 100 years

3. Wolf mortality and access management will be addressed through a reasoned, site-specific analysis process to be conducted in cooperation with the FWS and ADF&G. This is directed as a standard and guideline in the Forest Plan and solutions may include road access management.

[Id. at 21]. The document is "Old-growth Forest Habitat Conservation Strategy Alexander Archipelago Wolf …". All three of their relevant assumptions about the adequacy of the strategy and particularly the old-growth reserves have unraveled since then, as demonstrated above and as events including the continual and alarming decline of the GMU-2 wolf population since the mid-1990s have shown.[160]

As a step toward *ensuring* [NFMA; 36 C.F.R. §219.19] the viability of the Alexander Archipelago wolf and fulfilling its duty provide for subsistence needs [ANILCA], the Forest Service needs to reevaluate and reinforce its Conservation Strategy. As the Ninth Circuit has instructed, the Forest Service "is required by statute and regulation to safeguard the continued viability of wildlife within the Forest. *Idaho Sporting Cong. v. Rittenhouse*, 305 F.3d 957, 961 (9th Cir. 2002). A Revised DEIS is needed, and consideration and selection of an alternative for an immediate end to old-growth logging would be the best solution.

c. The 2008 and Draft Forest Plans' wolf guidelines are unenforceable, violating NFMA by not ensuring viability

The National Forest Management Act (NFMA) through the Forest Service's implementing regulations requires the agency to *ensure* the viability and wide distribution (here, collectively "viability") of all native species. [36 C.F.R. § 219.19]. However, authors of the Alexander Archipelago Wolf Conservation Assessment [Person et al. 1996 (603_0190)] concluded that they could not determine what a minimum viable wolf population is, or the minimum deer population requisite for supporting it:

We cannot suggest a minimum deer population because we do not know what would constitute a minimum viable wolf population either demographically or genetically. Many more data are needed concerning the population structure, genetic structure, and predator-prey relations of wolves in southeast Alaska before this question can be answered. This question also must be addressed separately for the major island groups and possibly for individual sections of the mainland that are divided by major glaciers or river drainages.

[Id. at 27]. Similarly, neither were the Forest Service [1997 & 2008 TLMP FEISs] or the panel of wolf experts it consulted in 1995 and 1997 [scribes' notes on the panels (11-JLM-510 at 187-205 and 1709-1720)] able to determine what constitutes viability for wolves on the Tongass or more broadly in Southeast Alaska. Consequently, in an attempt to meet the NFMA requirement to ensure viability, the Forest Service adopted wolf standards and guidelines in the 1997 and 2008 Forest Plans that are aimed at sustaining wolf populations,

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[159] This is for within reserves, not to be confused with the wolf standard and guideline that has a superficially similar number.

[160] [Exh. 406 (2015 Forest Service wolf briefing); Exh. 407 (ADF&G 2015 GMU2 population estimate); Exh. 409 (Greenpeace critique of Exh. 407)]. *See also*: Exhs. 403 & 404 (2013 & 2014 declarations by Person).

as a more protective but necessary approach. However, the fly in this ointment is that the measures are merely unenforceable guidelines, with respect both to limiting road density and reserving habitat that will provide an adequate carrying capacity for deer. We are unaware of any instances where these provisions have had any effect on Forest Service decisionmaking, with the except of the Gravina Island Project whose ROD was withdrawn on appeal in 2004. Since when the 1997 was adopted, the metrics in the guidelines for deer carrying capacity and road density have routinely been exceeded by timber projects, even when the current conditions were already substandard.

The Forest Service may focus on measuring habitat in protecting Management Indicator Species only if the Forest Service is "maintaining a sufficient amount of suitable habitat to support a species' viability * * *." *Lands Council v. McNair*, 537 F.3d 981, 998–99 (9th Cir. 2008). The Forest Service does not have the discretion to allow degradation of habitat below levels necessary to ensure viability of MIS. *Id.* A bare requirement to "consider" and "evaluate" deer habitat—which is how the agency interprets the wolf standard and guideline—fails to ensure that actual habitat conditions are sufficient to meet the needs of the wolf. *See Native Ecosystems Council v. Tidwell*, 599 F.3d 926, 933 (9th Cir. 2010) ("Underlying the proxy-on-proxy approach is the assumption that maintaining the acreage of habitat necessary for survival would in fact assure a species' survival."). Thus, the 1997 and 2008 TLMPs have violated NFMA, as would the present draft TLMP. Standards are needed that set a hard floor for the amount of deer habitat capability that must be retained[161] and a hard ceiling road density.

d. Conclusion

For the reasons given in this section, there is an immediate need to improve the Conservation Strategy through its revision in this Forest Plan amendment process. This should be done through a revised DEIS (RDEIS). In order to "sharply define the issues and provide a clear basis for choice among options" (40. C.F.R. 1502.14) the alternative we have requested for an immediate end to old-growth logging should be given detailed study in the NEPA document.

[161] Further, in cases where deer carrying capacity is already substandard, the standard needs to prevent further loss of habitat.

APPENDIX B -- List of Exhibits submitted with our DEIS comments

This list includes one file that (Exh. D-93) that was not on the exhibits DVD mailed in advance of our comments submission. That additional exhibit is being sent by email along with our comments.

Exh D-01_2011 exhibits -- Archive of ones missing from the WIP planning record.zip

Exh D-02_2011 exhibits DVD packing list (31Jan11), for TCS & Greenpeace 26Jan11 WIP comments.pdf

Exh D-03_ADF&G (2012a)__Feasibility assessment - Incr'g deer sust harv in part of GMU-3.pdf

Exh D-04_ADF&G (2012b)__Status Of Wolves In Southeast Alaska_(Searchable).pdf

Exh D-05_ADF&G (2015)__GMU2 wolf population estimate update, fall 2014 (16Jun15).pdf

Exh D-06_AK Jrnl of Commerce (2006)__Alcan, runner-up for Exporter of Year (see page 2) (4Jun06).pdf

Exh D-07_Alaback et al. (2015)__Scientist's review of TAC recommendations (12May15).pdf

Exh D-08_Alcan Forest Products (2016)__Alcan is a division of TransPac Group (TransPac website).pdf

Exh D-09_Alexander (2011)__706(b) Rept_Status of the TNF for 2007 (R10-MB-747).pdf

Exh D-10_Aubry & Raphael (2014)__Martens, sables & fishers - New synthesis informs conservation.pdf

Exh D-11_AWL et al. (2016)__Letter to Earl Stewart on TLMP amendment (22Feb16).pdf

Exh D-12_Bunnell & Kremsater (2012)__Migrating like a herd of cats -- BC forests.pdf

Exh D-13_Carstensen et al. (2007)__The Wrangell, Zarembo and Etolin Province.pdf

Exh D-14_Cascadia et al. (2015)__Scoping comments from 5 orgs (transmittal email, 27Nov15).pdf

Exh D-15_Cascadia et al. (2015)__Scoping comments from 5 orgs (as emaiiled 27Nov15).pdf

Exh D-16_Cascadia et al. (2015)__Scoping comments from 5 orgs - Errata, entire comments (30Nov15).pdf

Exh D-17_Cascadia et al. (2015)__Scoping comments from 5 orgs - Errata, fixed page only (30Nov15).pdf

Exh D-18_Cheveau et al. (2013)__ Marten space use & habitat selection, managed boreal.pdf

Exh D-19_Clark (2009)__Letter to Forrest Cole about Wrangell Island 10 Year Timber Sale (8Apr09).pdf

Exh D-20_Cushman et al. (2011)__Limiting factors & landscape connectivity, marten in the Rockies.pdf

Exh D-21_D'Amore & Hennon (2006)__Soil_&_Temp_&_AYC_Decline.pdf

Exh D-22_Davis et al. (2011)__Longevity & reuse of black bear dens, managed coastal BC forests .pdf

Exh D-23_DeGayner et al. (2005)__Windstorm disturbance & structure and black bear dens in SE Ak .pdf

Exh D-24_Dist. Crt. Alaska (2013)__Order RE pending motions in Alcan vs A-1 Timber Consultants.pdf

Exh D-25_Dist. Crt. Western WA (2013)__Decision in US v State of WA.pdf

Exh D-26_Earthjustice (2014)__Letter to Cole__re PLOR4 Orchid New Information (2Jul14).pdf

Exh D-27_EcoNorthwest (2014)__The econ. importance of Alaska's wildlife in 2011.pdf

Exh D-28_Edwards (2016a)__Notes from a meeting and phone calls with the WIP IDT (July 2016).pdf

Exh D-29_Edwards (2016b)__The unreliability of ADF&G's generalized wolf population status reporting.pdf

Exh D-30_Flynn (2004)__Preparation of manuscripts on marten ecology in Southeast Alaska.pdf

Exh D-31_Flynn et al. (2004) Abundance, prey availability & diets of marten in OGRs.pdf

Exh D-32_Flynn et al. (2006) PPT on marten, 2006 CSR.pdf

Exh D-33_GAO (2016)__Tongass Transition report (26Apr16).pdf

Exh D-34_Gillingham (1997)__Peer review of the deer model for FWS.pdf

Exh D-35_Greenpeace (2012)__Letter to Cole on 2011 deer model directive & GP v Cole remand.pdf

Exh D-36_Greenpeace (2014a)__Analysis, failed decisionmaking for PLOR4 in Big Thorne project.pdf

Exh D-37_Greenpeace (2014b)__Archive, documents cited in the Greenpeace 2014(a) PLOR4 analysis.zip

Exh D-38_Greenpeace (2015)__Critique of ADF&G's 2014 GMU-2 wolf status report (9Jan15).pdf

Exh D-39_Hargis et al. (1999) Forest fragmentation & landscape pattern influence on martens.pdf

Exh D-40_Harper (2010)__Furbearer management report.pdf

Exh D-41_Headwaters (2014)__The Tongass Transition Framework - A new path Fwd (Q).pdf

Exh D-42a_Iverson et al. (1996)__Northern goshawk conservation assessment (PNW-GTR-387).pdf

Exh D-42b_Iverson & DeGayner (1997)__Old-growth habitat conservation strategy - wolf & QCG.pdf

Exh D-43_Iverson (2006)__A retrospecitve memo about the conservation strategy.pdf

Exh D-44_Iverson et al. (1996)__Conservation Assessment, Northern Goshawk in Southeast Alaska.pdf

Exh D-45_Kiester & Eckhardt (1994)__Review of Wildlife Mgmt & Cons Biology on the TNF.pdf

Exh D-46_Kirchhoff (2015)__Comments to the TAC (21Jan15).docx

Exh D-47_KRBD (2016) Southeast's largest lumber mill may close (7Apr16).pdf

Exh D-48_Lowell (2006)__ADF&G Wolf Management Report for Unit 3, 2006.pdf

Exh D-49_Lowell (2009)__ADF&G Wolf Management Report for Unit 3, 2009.pdf

Exh D-50_Lowell (2013) PPT for Unit 3 FA for IM, presented at Board of Game's (Jan 2013).pdf

Exh D-51_McDowell Group (2015)__Economic impact of Alaska's visitor industry for 2013-2014.pdf

Exh D-52_Mehrkens (2012a)__Tongass timber economics 101.pdf

Exh D-53_Mehrkens (2012b)__Tongass Budget Analysis for GSACC.xlsx

Exh D-54_Morado et al. (1988)__Idiopathic lesions in Dungeness crab from Rowan Bay.pdf

Exh D-55_Moriarity et al. (2016)__Forest thinning changes movement & habitat use by marten.pdf

Exh D-56_Nichols (2014)__Application of Alcan's Nichols to serve on the TAC (4Mar14).pdf

Exh D-57_O'Clair & Freese (1985)__Dungeness in bark debris at LTFs (survival, feeding, reprod).pdf

Exh D-58_O'Clair et al. (1988)__Reproductive condition of Dungeness crabs near SE Ak LTFs.pdf

Exh D-59_Peacock (2004)__Ch-3 - Quantification of black bear use of salmon streams (SE Ak).pdf

Exh D-60_Person & Larson (2013)__Developing method to estimate wolf abundance in SE Ak.pdf

Exh D-61_Person & Russell (2009)__Wolf reproduction & den selection in a disturbed landscape.pdf

Exh D-62_Person (2001)__Wolf Dissertation (complete copy, with separate files for Figs, Tables, etc).zip

Exh D-63_Person (2014)__2nd declaration.pdf

Exh D-64_Piazza (2012)__Emails with IDT lead Piazza about lost WIP exhibits (Oct-Nov 2012).pdf

Exh D-65_Porter (2011)__Retrospective observations on the GMU2 wolf decline as beginning in 2004.pdf

Exh D-66_Powell et al. (1996)__Peer_Statement__searchable (Oct-1996).pdf

Exh D-67_Powell et al. (1997)__Peer_Statement__searchable (Sep-1997).pdf

Exh D-68_Puchlerz (2002)__Directive with corrections for deer model use (References_Attached).pdf

Exh D-69_Rhodes (2013)__Declaration concerning roads and watersheds.doc

Exh D-70_SE Conference (2016)__Southeast Alaska Economic Plan 2020 (May-2016).pdf

Exh D-71_Sitka Sentinel (2013)__SE economy bounces back, conference told (17Sep13).pdf

Exh D-72_SitNews (2012)__Prince of Wales Area redefines its economy (1Aug12).pdf

Exh D-73_SitNews (2016)__Mid-sized sawmills face possible closures (30Mar16).pdf

Exh D-74_Sonsthagen et al. (2012)__Metapopulation dynamics among coastal Northern Goshawks.pdf

Exh D-75_Stensvold (2006)__Report, 2006 PLOR4 surveys, Traitors Cove Timber Sale (31_0429).pdf

Exh D-76_Stroh et al (2008)__Deer prevent western redcedar regeneration (Haida Gwaii).pdf

Exh D-77_Suring et al. (1993)__Viapops Strat__COMPLETE review draft (searchable)__(740_1215).pdf

Exh D-78_Suring et al. (1994)__Response_to_Peer_Review (Searchable).pdf

Exh D-79_Thomas et al. (2014)__National park visitor spending, effects to local communities & states.pdf

Exh D-80_USFS (2005)__Soda Nick IDT mtg ('If it's not in the planning record, it didn't happen').ppt

Exh D-81_USFS (2009) Navy timber sale project FEIS.pdf

Exh D-82_USFS (2013)__Big Thorne FEIS (Chapter 3).pdf

Exh D-83_USFS (2015a) Navy timber sale project, Second ROD.pdf

Exh D-85_USFS (2015b)__Kosciusko Final-EA, FONSI and Draft DN (2015).pdf

Exh D-86_USFS (2015c)__Saddle Lakes FEIS__Chapter 3.pdf

Exh D-87_Wilson (2002)__Cedar Harvest on the Tongass National Forest, 1997 - 2001.pdf

Exh D-88_Woodford (2015)__POW Black bears nest in cavities high in trees__ADFG (Mar-2015).pdf

Exh D-89_Zhou (2013)__Production, Prices, Employment - NW forest ind., all qtrs 2012 (PNW-RB-265).pdf

Exh D-90_Zhou (2015)__Production, Prices, Employment - NW forest ind., all qtrs 2013 (PNW-RB-266).pdf

Exh D-91_Zhou (2016a)__Volume and value of West coast log, lumber exports down in 2015.pdf

Exh D-92_Zhou (2016b)__West Coast log exports down, lumber up -- 1st quarter 2016 (26May16).pdf

Exh D-93_USFS (2007)__Tracking form for internal comments on draft TLMP EIS (603_1265, color).pdf

APPENDIX C – 2011 exhibit submissions that are absent in the planning record, and being resubmitted now.

The files contained in the archive Exh. D-__ (Archive of 2011 exhibits missing from the WIP planning record.ZIP) and listed below were among those submitted with the WIP scoping comments of Tongass Conservation Society and Greenpeace on January 11, 2011. However, they are not included in the project planning record that we received in 2016. Several other 2011 exhibits that are also missing are referenced in our DEIS comments and accordingly are being resubmitted separately from this collection, with their own exhibit numbers. (The files submitted in 2011 did not have exhibit numbers.)

2011 EXHIBITS BEING RESUBMITTED IN THE ARCHIVE FILE:

BC-MinFor_Brochure-41__4-of-5_1996__Deer_&_Predators.pdf

BC-MinFor_Brochure-58__5-of-5_1998__Deer_Habitat_Assessment.pdf

Caouette_&_DeGayner_2005__Predictive_Tree-Size_&_Density_Mapping.pdf

Conversation with Paul Alaback__6 Aug 10.txt

Cook_&_MacDonald_2001__Should endemism be focus of conservation along N Pacific Coast.pdf

Cook_et-al_2006__Fragmented_Systems_Alex_Archipelago__BIOL_CONS.pdf

Flynn_&_Ben-David_2006__(PPT) American Maren - Assessement of new info since '97_CSR Workshop.pdf

Greenpeace_e-a_2009__Navy Timber Project Appeal (GP_CWP_TCS_SCS) 8Jun09.pdf

Haufler (2005)__[comments errata -- SEE Hanley et al. (2005)].txt

Haufler (2005)__CITATION ERRATA -- Ref should be to Hanley et al. (2005).txt

Juday_et-al_1998__Forests_Climate Stress_Insects_&_Fire__(Complete_Searchable).pdf

Leighty_e-a_2006__Southeast-Ak Forest Mgmt & Carbon Sequestration.pdf

Lowell_14Nov05__About_unreported_wolf_harvest_&_viability on Wrangell Island.pdf

Lowell_16Oct06__Wolf_&_Marten_Viability_on_Kuiu_Kupreanof_Mitkof.pdf

McClellan_e-a_2000__Alternatives_to_Clearcutting__PNW_GTR_494.pdf

Mitchell_e-a_2009__Fuel reduction_fire severity_&_long-term C storage__3 PNW ecosystems.pdf

OVK_1997__Postion paper on Customary and Traditional Gathering (subsistence).pdf

Person_&_Bowyer_1997(August 13)__Wolf_PVA.pdf

Person_2006__Wolf panel presentation at the April 2006 Tongass CSR Workshopf.pdf

SEACC et al (2008)__Excerpted material on resident and migratory deer__from the Kuiu appeal.pdf

Smith_&_Zollner_2005__Sustainable_Habitat_Mgmt_&_Extinction_Risk.pdf

Smith_2005__Small_Mammal_Diversity_Ecology_&_Plan_Implications.pdf

State-of-Alaska_TLMP_Comments__27Apr07.pdf

State_of_Alaska_Comments__Navy__DEIS_14Jan08.pdf

Suring_et-al_Jul-92__Marten_Model_SEARCHABLE.pdf

USFS-(Powell)_1998-(7Aug)__Tongass_Forest_Plan_Implementation_Clarifications.pdf

Weckworth_e-a_2010__Phylogeography of wolves (Canis lupus) in the Pacific Northwest.pdf

Weckworth_et-al_Apr05__Coastal_Wolf_Genetics.pdf

Wolfe_2000__Subsistence in alaska -- a year 2000 update.pdf

APPENDIX D – Lists of our exhibits submitted in 2011, 2013 and 2015, with planning record numbers if indexed.

This is a list of exhibits submitted during three scoping processes for the Wrangell Island Project, and giving the record number (if any) assigned by the Forest Service. Exhibits missing from the planning record are indicated in **bold** type.

Exhibit	**2011 (no exhibit numbers used) TCS & Greenpeace exhibits**	**2013 Greenpeace et al. exhibits**	**2015 Cascadia et al. exhibits**
0	n/a	n/a	0867 (Exhibit list, 11/27/15)
1	0868 (DFG, 15Jun06 review of CSR draft)	0148 (PDF of WIP webpage)	0767 & 0121 ('98 Wrangell Island Assessment). **0767 is the best copy.**
2	0869 (DFG '07, Ak comm. fish harvests)	0149 (Email & FS resp, project map.)	0775 (Pendleton export letter)
3	0174 (Alaback '08, canopy gaps, prelim.)	0150 (Person 2013 dec'l on BT)	0778, 0781, and to 0790-0798 (Exhs 3a thru 3k)
4	0870 (Alaback '10, canopy gaps, final)	0151 & 0861 (Winston Smith '13)	0799 (SitNews 2013)
5	0871 (Edwards analysis of Alaback '10)	0152 & 0862 (Winston Smith '12, BT)	0825 (UFA)
6	0872 (BC Min For, '96 Deer habitat)	0153 (Lowell msg to Quentin, Wrangell marten)	0826 (Appleman comments, SESFMP)
7	0873 (BC Min For, '96 Deer & Logging)	0154 (Merkens BT dec'l , 14Aug13)	0827 (Branson comments, SESFMP)
8	**BC Min For, '96 Deer & Predators**	0155 (Person & Brinkman 2013)	0828 (Demerjian comments, SESFMP)
9	**BC Min For, '98 Deer Hab Assess**		0829 (Todd comments, SESFMP)
10	**Caouette & DeGayner '05**		0830 (Nicols/Alcan, Skipping Cow export)
11	**Caouette e-a '00**		0831 (Wrangell maps from SESFMP)
12	**Conversation with Alaback**		0832 (WIP project plan)
13	**Cook & McDonald '01, Endemism**		0833 (Zhou 5/27/15, PNW exports) **Mis-linked as 0834 in PR index.**
14	**Cook e-a '06, Alex. Arch. Fragged**		0834 (Zhou 3/11/15, PNW exports)
15	**D'Amore & Hennon '06, AYC decline**		0835 (Bruce Glass, TimberTrends)
16	0724 (Farmer e-a '06)		0836 (N. Farm Credit Svc, Timb Perspect)

17	**Flynn & BenDavid '06, marten**		0837 (Lehman, ODoF, export)
18	**GP e-a '09, Navy appeal**		0838 (Merkens 2012, Timber Econ 101)
19	0644 (Hanley '05, maintaining habitat)		0839 (Lindenberg FEIS QCG section)
20	0771 (Harris '99, wind forests)		0840 (Doughnut TS EA)
21	**Haufler '05 (should be Hanley e-a '05)**		0841 (Backline DN/FONSI)
22	**Juday e-a '98, forests & climate**		0842 (Shady TS EA/FONSI)
23	**Kiester & Eckhardt '94**		0843 (WRD ATM)
24	**Leighty e-a '06, SE Ak carbon**		0844 (WRD Roads Anal., w/o Zarembo)
25	**Lowell 14Nov05, unreported wolf harv.**		0845 (Black Bear Mgmt Rept, '07-'10)
26	**Lowell 16Oct06, wolf marten viab.**		0846 (New Log Handling Facilities, BC)
27	**McClellan e-a '00, cc alternatives**		0847 (Sustainable log handling, BC)
28	0566 (McNay & Voller '95, deer)		0848 (Fisher & Velasquez, Dungeness)
29	**Mitchell e-a '09, fire & carbon**		0849 (ADFG, Kirkpatrick, bark accumul.)
30	**OVK '97 position paper, subsist**		0850 (ADFG, Kirkpatrick, Alexander Bay)
31	**Person & Bowyer '97, wolf PVA**		0851 (Stout, Oregon coast coho)
32	0691 (Person & Russell '08)		0852 (Foley, fish habitat bioeconomics)
33	**Person '01** **(This is a complete, good quality copy. The copy in the record in incomplete and not searchable)**		0853 (Knowler '01, Value of salmon hab.)
34	**Person '06, CSR Workshop wolf PPT**		0854 (Knowler '03, Value of salmon hab.)
35	0575 (Person e-a '96, Wolf cons. assess.)		0855 (Niemi; Salmon, timber, economy)
36	0579 (Person e-a '97, scientists' wolf letter)		0856 (Goodin, US v State of Wa)
37	**Powell e-a '96, peer scientists' letter**		
38	**Powell e-a-'97, peer scientists letter**		0866 (Sedell '95, Log storage & fish)
39	0648 (Runck & Cook '05, red-backed vole)		0857 (Faris '85, Log storage in SE Ak)

40	**SCS e-a '08, Kuiu appeal excerpt**		0858 (Doyle '05, QCG)
41	**SEACC e-a '08, Kuiu app. excerpt.**		
42	**Smith & Zollner '05, Hab. & extinction**		
43	**SoA '07 TLMP comments**		0859 (McClaren '05, QCG)
44	**SoA '08, Navy TS comments**		0860 (NoGo recovery team, '08)
45	**Suring e-a '92, marten model**		0861 (Smith '13, Spatial analysis, QCG)
46	**Suring e-a '94, resp. to peers**		0862 (Winston Smith comments, BT)
47	0533 (Suring e-a '92, deer model)		0863 (Flatten '01, QCG)
48	**Powell '98, TLMP clarifications**		0864 (2011 wolf ESA petition)
49	**Weckworth e-a '10**		0865 (Google Earth KMZ, Saddle Lakes)
50	**Weckworth e-a '05**		
51	**Wolfe '00, Subsistence in Ak**		

LIST 1: Content of additional DVDs sent in the October 2012 resubmission of exhibits.

Folder: Other Panel Videos -- TNR CSR Workshop (April 2006) 2006 CSR Workshop agenda, and about the panel videos

(Sub-folder): 2006 CSR Workshop agenda, and about the panel videos

(Sub-folder): PPTs of the Panelists

Main Folder Files:

1a - Introductions__Opening by Cole Bschor__Agenda check__CSR Workshop_Apr-2006_WMV V9.wmv
1b - Conservation Strategy Overview (Video)_(Opening Session)_CSR Workshop_Apr-2066_WMV V9.wmv
2a - New Info for Conservation Planning (Video)__CSR Workshop_Apr-2006.flv
3a - Foreest Plan Implementation to Date (Roads)_(Video)__CSR Workshop_Apr-2006.flv
3b - Forest Plan Implementation to Date (OGRs)_(Video)__CSR Workshop_Apr-2006.flv
4a - Marten Panel (Video)__Tongass CSR Workshop__Apr 2006_WMV V9_001.wmv
5a - Northern Goshawk ESA Status (Video)__CSR Workshop_Apr-2006.wmv

6a - Northern Goshawk, Summary of Study Findings (Video)__CSR Workshop_Apr-2006.flv
7a - Marten & Goshawk S&GS (Video)__Tongass CSR Workshop_2006.flv
8a - Brown Bear__CSR Workshop (Video)__Apr-2006 (b).flv
9a - Other Mammals & Endemics Panel (Video)__Tongass CSR Workshop_2006_WMV V9.wmv
10 - Other Forest Nesting Birds (Video)__CSR Workshop_Apr-2006.wmv
11 - Young Growth Panel (1st segment corrupted, dropped)__CSR Workshop_Apr-2006.wmv
13 - FRESH Deer Model (Video)__CSR Workshop_Apr-2006.wmv
14 - Investing in New Information (Video)__Green__CSR Workshop_Apr-2006.flv
15 - Integration -- Staff-group Report (Video)__CSR Workshop_Apr-2006.wmv
16 - Integration Work Session (Video)__CSR Workshop_Apr-2006.wmv
17 - Closeout Session (Video)__Tongass CSR Workshop_Apr-2006.flv
File_video.txt

Sub-Folder: 2006 CSR Workshop agenda, and about the panel videos

2006 CSR Workshop agenda, and about the panel videos
Introduction -- Videos of Panels at the 2006 Tongass Conservation Strategy Workshop.pdf
Workshop Agenda final.pdf

Sub-Folder: PPTs of the Panelists

Present1-ConsStrategyOverview.pdf
Present2-ConsPlanning-NewInfo.pdf
Present3-Implement-TimberRoads.pdf
Present4-OGR-Amendments.pdf
Present5-Marten.pdf
Present6-Goshawk-ESA.pdf
Present7-Goshawk-LocalNewInfo.pdf
Present8-Goshawk-Marten-S&Gs-rev.pdf
Present9-BrownBear.pdf
Present10-Mammals-Endemics.pdf
Present11a-ForestBirds.pdf
Present11b-MarbledMurrelet.pdf
Present13-Wolf.pdf
Present14-DeerHabitat.pdf
Present15-InvestingNew-Info.pdf
Present16-Mcclellan_csr_younggrowth_060413.pdf