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ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

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VIA ELECTRONIC MAIL AND HAND DELIVERY

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Re: Appeal of Big Thorne Project, Thorne Bay Ranger District

Dear Ms. Pendelton:

Pursuant to 36 C.F.R. Part 215, Alaska Wilderness League, Natural Resources Defense Council, Sitka Conservation Society, and Tongass Group of the Sierra Club, through counsel, hereby appeal the Record of Decision (ROD) for the Big Thorne Project, signed by Tongass Forest Supervisor Forrest Cole on June 28, 2013, and the associated Final Environmental Impact Statement (FEIS).

Big Thorne is an anomaly. In a time of weak and declining demand for timber, it is by far the largest timber project on the Tongass since the Ketchikan pulp mill was still in operation under a 50-year timber sale contract. It contains 149 million board-feet (mmbf) of timber, more than was cut from the Tongass in the last five years combined. It is based on a highly exaggerated calculation of market demand for Tongass timber and wastes taxpayer money. Worse, it is located in an area of the Tongass that has experienced so much habitat loss from past logging that viable wolf and goshawk populations and sustainable deer hunting opportunities are already jeopardized. In short, it is a wasteful and unnecessary sale that places at risk values important to residents of Southeast Alaska and of the nation.

The entire approach of the ROD and the FEIS is contrary to the U.S. Department of Agriculture's (USDA's) stated goal of transitioning quickly away from old-growth logging. The Big Thorne Project threatens simply to entrench and prolong the existing unsustainable old-growth industry. Rather than destroy what old growth habitat remains on North Central Prince of Wales Island, the Forest Service should focus its efforts on decisions consistent with a rapid transition away from old-growth logging.

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Appellants request that the ROD and FEIS be reversed and remanded in light of the failure of those documents to assess accurately the need for the project, its economic costs, and its impact on wildlife. Any new decision must correct these errors, but—in light of the long-term weak demand for timber and the extreme threat posed to wolf and goshawk populations and hunting opportunities on Prince of Wales Island—the better course would be to drop these plans for old growth logging in the project area. Until a defensible decision is made, no old growth logging or road building should proceed.

I. DESCRIPTIONS OF APPELLANTS

Alaska Wilderness League (the League) is a non-profit organization with approximately 90,000 members and activists located in Alaska and throughout the United States. The League was founded in 1993 to advocate for protection of Alaska's public lands and waters, which are threatened with environmental degradation. The League is headquartered in Washington, DC and has Alaska offices in Anchorage, Barrow, Fairbanks, and Juneau. The League works to preserve Alaska's wild lands and waters by engaging citizens and decision makers with a courageous, constant, victorious voice for Alaska. The League works at the federal level on a variety of issues affecting Alaska's wild land and waters including the Tongass National Forest. The League's rainforest program is focused on gaining additional administrative and legislated protections for high-value, priority areas in the Tongass identified through strong science and local knowledge of community priorities.

The Natural Resources Defense Council (NRDC) is a non-profit public interest organization with 1.2 million members and online activists. We have a long history of interest and involvement in Tongass-related management issues, dating back to the early 1970s. Over the years, we have participated in numerous Tongass management processes and our members have cumulatively filed many hundreds of thousands of comments on Tongass National Forest decisions. No other national forest has seen such sustained advocacy from NRDC. This commitment reflects the unique place the Tongass holds in the National Forest System, as its largest unit and the one with far and away the most natural values, and indeed the largest in the world's catalogue of remaining principally intact temperate forest ecosystems.

Sitka Conservation Society (SCS) has been working to protect the temperate rainforest of southeast Alaska and promote the development of socially, ecologically, and economically sustainable communities that live within the Tongass National Forest. SCS is based in the small coastal town of Sitka, Alaska, located on the west coast of Baranof Island in the heart of the Tongass. SCS works closely with the USFS and a wide range of regional partners to look for a pathways forward in the region to ensure a healthy environment and healthy communities for the current and future generations.

The Tongass Group of the Sierra Club (Tongass Group) is a part of the Sierra Club, a grassroots organization with approximately 600,000 members nationwide. The Alaska Chapter of the Sierra Club has approximately 1700 members with about 300 of them residing in Southeast

Alaska as members of the Tongass Group. Members of the Tongass Group, and the Sierra Club nationally, use the Tongass National Forest for recreation, commercial and recreational fishing, subsistence, wildlife viewing, and other activities. The Sierra Club has advocated for the protection of Tongass wildlands and the values therein since 1892 when the club was created by John Muir. The Tongass Group has been active in creating, opposing, or supporting Tongass land management actions for 45 years. These efforts include helping to secure the final passage of the Tongass Timber Reform Act, commenting on successive Tongass National Forest Plans, advocating for the inclusion of the Tongass National Forest in the Roadless Area Conservation Rule, advocating for the designation of Tongass Inventoried Roadless Areas as Wilderness during the 'Supplemental Environmental Impact Statement (SEIS) for Roadless Area Evaluation for Wilderness Recommendations', and commenting on numerous individual timber sales and other projects in Southeast Alaska.

Appellants submitted substantive comments on the Big Thorne Draft Environmental Impact Statement (DEIS) last year. Previously, appellants commented on and, in some cases, appealed timber sales implementing forest plans for the Tongass over the years. They also commented on and appealed the 2008 Amendment to the Tongass Land Management Plan (TLMP) and the associated TLMP Amendment Final Environmental Impact Statement (TLMP FEIS). Appellants incorporate by reference all of the points made in the TLMP appeals filed by Alaska Wilderness League, Audubon Alaska, Natural Resources Defense Council, Sitka Conservation Society, Southeast Alaska Conservation Council, Trout Unlimited Alaska, and The Wilderness Society. Appellants may be contacted through counsel at the names, addresses and telephone numbers indicated in the signature block. For purposes of 36 C.F.R. § 215.14(b)(3), Earthjustice is the "lead appellant."

II. THE BIG THORNE FEIS AND THE TLMP FEIS VIOLATE NEPA BECAUSE THEY ARE BASED ON UNSUPPORTED AND FALSE ECONOMIC INFORMATION.

A. The Reasons Given for Scheduling the Big Thorne Timber Project are Arbitrary and Violate NEPA.

The FEIS greatly exaggerates the demand for timber on the Tongass based on errors and unexamined assumptions that fatally undermine the entire stated basis for the Big Thorne Project. "Timber Supply" was cited as "Issue 1" in both the FEIS and ROD. FEIS at 1-12; ROD at 14. The "purpose and need" section of the FEIS states, "The detailed rationale for scheduling a large sale in the Big Thorne project area is presented in Appendix A of this EIS." FEIS at 1-4. Appendix A, aptly titled "Reasons for Scheduling the Environmental Analysis of the Big Thorne Project, FY 2013," sets forth the detailed volume calculations that led the Tongass staff to conclude a large timber sale was needed to meet timber market demand goals. That appendix, however, is full of errors that require rethinking the entire purpose of the project and, if any timber is needed from Big Thorne at all, preparing a supplemental EIS.

Appendix A describes in detail the process followed to evaluate the volume of timber needed to meet market demand, leading to a 2013 goal of providing 429 mmbf of timber under contract. *See* FEIS App. A at A-14, Table A-2. That volume is more than 20 times the actual volume logged in FY2012, *see id.* at A-4, Figure A-1 (21 mmbf in FY 2012), and 315 mmbf more than the amount currently under contract. *See id.* at A-14, Table A-2 (114 mmbf under contract as of April 2013). This enormous perceived shortfall in timber led the Forest Supervisor to conclude that it was necessary to approve a single mega-project providing 149 mmbf of timber, ROD at 11 (citing Appendix A), seven times the amount logged in FY2012, *see* FEIS App. A at A-4, Figure A-1, making it the largest timber sale on the Tongass since the pulp mill era.[1]

Had Tongass staff made reasonable assumptions about timber needs, it would have been clear that no new timber is needed at all to meet near-term market demand and that only much smaller amounts would be needed in later years. The agency's goal is to have a 2-3 year supply of timber under contract. FEIS App. A at A-9. In the last three years combined, timber sale purchasers have cut 89.4 mmbf from the Tongass, averaging about 30 mmbf/year but on a downward trend during that time. *See id.* at A-4, Figure A-1. Since there is already 114 mmbf under contract, *see id.* at A-14, Table A-2, it would be possible to cut an average year's timber with no new offerings and still have 84 mmbf remaining under contract, a 2.8-year supply, well within the goal of maintaining a 2-3 year supply under contract. In future years, it would take only another 30 mmbf or so per year, or less if demand continues to decline, to replace the amount cut and maintain the desired supply under contract.

Overestimating the need for timber has substantial adverse effects. It misleads the public. It pushed the Tongass staff to schedule a massive sale in an area where past habitat loss and road access already jeopardize the ecosystem balance among deer, wolves, and human hunters. It wastes vast sums of taxpayer money. Had the agency accurately perceived the demand for timber, it would have been possible to schedule a much smaller sale, or no sale at all. The Tongass staff could have considered, and the Forest Supervisor selected, much less damaging alternatives. Nor is it an adequate answer that no one will buy the timber if the demand does not exist. Over-preparing timber needlessly puts at risk important habitat that could be avoided with an appropriately sized timber sale program. It also wastes enormous sums of money that could be invested in more productive pursuits for Southeast Alaska. Appendix A itself calls for diversifying the economy of the region and restoring public lands, FEIS App. A at A-5, goals thwarted by wasting limited money on excessive old-growth timber sales. As the Ninth Circuit Court of Appeals explained in a similar case, "if the demand for timber was mistakenly exaggerated, it follows that the timber harvest goal may have been given precedence over the competing environmental and recreational goals without justification sufficient to

[1] Excessive timber sale preparation is not limited to Big Thorne. In the next five-year period, the Forest Service is planning to offer another 377 mmbf of old and young growth in addition to Big Thorne. *See* Exhibit 1 (January 2013 Issue Paper). With Big Thorne, the total planned offerings in the next five years are 526 mmbf, enough timber to last more than 17 years at the average cut level of the last three years.

support the agency's balancing of these goals." *NRDC v. U.S. Forest Serv.*, 421 F.3d 797, 808 (9th Cir. 2005).

Three principal errors in Appendix A led to a greatly inflated volume goal: (1) relying on a demand study, prepared at the peak of the housing bubble, that time has shown to be highly inaccurate; (2) using a "scenario" in that study far out of line with current market conditions; and (3) using the wrong number to determine the goal of volume under contract. These errors render the decision arbitrary and in violation of NEPA.

1. Time has demonstrated that the Brackley study does not accurately predict timber demand.

The methodology used by the Tongass National Forest for determining market demand relies heavily on projections prepared by Brackley, et al., in 2006. *See* FEIS App. A. at A-6 to A-7. Perhaps Brackley, et al., can be forgiven for not realizing they were at the peak of the housing market, just before its collapse. It is arbitrary, however, for the Tongass staff in 2013 to continue to ignore the significant gap between the Brackley projections and actual experience.

Brackley, et al., identified four demand "scenarios" named, in order from lowest to highest demand, limited lumber, expanded lumber, medium integrated, and high integrated. *Id.*; *see also* PR 736-1628 at 15-18 (Brackley 2006). In all of them, even the lowest "limited lumber" scenario, demand rises over time. *See* FEIS App. A at A-7, Table A-1. For example, in the "limited lumber" scenario, demand would rise from 49.8 mmbf in 2007 to 54.3 mmbf in 2012. *Id.*

This turned out to be completely wrong. In reality, logging collapsed immediately to 18.7 mmbf in 2007, sputtered up to 36 mmbf in 2010, and fell back to 20.8 mmbf in 2012. *Id.* at A-4, Figure A-1. Thus, by 2012, actual demand was only 38% of that forecast by Brackley, et al.[2] Appendix A completely ignores the yawning gap between the Brackley projections and actual experience, despite the fact that both sets of numbers are reported in the appendix itself. This was arbitrary.

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[2] The decline was not due to lack of supply. At the end of 2011, for example, the Forest Service reported over 100 mmbf of volume under contract, PR 736_0019, yet the industry cut only about one-fifth that in FY 2012. *See* FEIS App. A at A-4, Figure A-1. Since the end of FY 2009, volume under contract has been steadily growing, *see* Exhibits 2-5 (volume under contract, FY 2009-2012), while volume logged each year has been declining, s*ee* FEIS App. A at A-4, Figure A-1, indicating weak markets for the timber. *See* PR 736_2182 at 31 (Morse 2000) ("When the volume under contract is rising, it indicates that sale offerings may be running ahead of demand."). At all times, there was at least a 2-year supply of timber under contract, and usually much more, consistent with agency policy. Several sales, such as Skipping Cow, Finger Point, and Lindenberg, were bid nearly ten years ago but still have significant remaining uncut volume. *See* Exhibit 5 (volume under contract FY 2012).

The reason for the gap, of course, was the collapse in worldwide demand for wood products that occurred immediately after the Brackley report. Brackley, et al., based their forecasts on numerous assumptions and projections that turned out to be false. In 2006, they wrote:

> Based on the above sources of information, there will likely be a high and almost unprecedented demand for forest products in the Pacific Rim market. For the first time in history, however, there is a question if the Pacific Rim price will be sufficient to compete with domestic markets. During the past several years, Alaska producers have found ready markets for their products in domestic (Alaska and continental 48 states) markets.

PR 736_1628 at 13. Compounding this now-obvious error, they expanded on these projections in a 2008 addendum, working with data that just barely preceded the collapse of the markets. "In all of the scenarios, we assume no structural shifts in the world's economic and political environment." PR 736_1629 at 27-28. "[S]everal events have occurred since the release of the original report that demonstrate that the demand for forest products is increasing." *Id.* at 29. "U.S. demand for softwood products is expected to increase at just below 1 percent per year mirroring the expected growth in population…." *Id.* They also prematurely announced the start-up of a veneer mill that never materialized, finding that it "tends to validate some of our assumptions that increasing demand will result from the industry becoming more integrated." *Id.* at 31. On the basis of these projections of continued growth, they upgraded their projection from the "limited lumber" scenario to "expanded lumber." *Id.*

In other parts of the record, the Forest Service acknowledges just how wrong these statements proved to be. In 2011, the agency wrote, "Economic conditions in wood products industries worldwide continue in a serious slump. . . . After 16 consecutive quarters of declining wood products prices, slight improvements have occurred the past three quarters. Prices remain low and recovery is expected to be slow." PR 736_1204 (April 2011).[3] "According to the World Economic Outlook (April 2009; IMF), this is the most severe and synchronized global recession in the past 50 years. The impacts are particularly severe for any industry tied to housing." PR 736_1525 at 2 (Oct. 12, 2011). "Domestic markets are not likely to recover soon, and timber prices are projected to continue to fall. . . . Alaskan wood products markets are closely tied to North America and the Pacific Rim, and are deeply affected by tight credit, low cost margin issues, and the continued depression in the domestic housing market." *Id.* at 13. The situation had not improved in 2012:

[3] The Forest Service made nearly verbatim findings one year later in the April 2012 briefing paper. Although the document is cited in the FEIS at 3-32, it is not in the project record produced by Tongass staff. It is attached as Exhibit 6.

> Struggles in the timber industry in southeast Alaska reflected by the mill capacity findings in this study mirror recent national trends. In Oregon, the largest timber and softwood lumber producer in the Nation, timber harvest in 2009 was the lowest it had been since the middle of the Great Depression (Dietz 2010). Western timber markets began to recover during the first half of 2010, fueled by optimism in domestic housing markets and strong Asian markets. However, when the homebuyer credit expired, new home starts fell, and remain lower than expected (Walker 2010). The lone stabilizing factor in Western timber and log markets is export demand, primarily from China and Korea. However, exports are not likely to keep prices from falling; experts expect exports to moderate falling prices (Walker 2010). Domestic markets are not projected to recover soon, and timber prices are likely to continue to fall. When demand for logs does recover, the lean inventories being held throughout the domestic supply chain make it probable that there will be a temporary price spike until inventories can be rebuilt (Walker 2010). Alaskan wood products markets are closely tied to North America and the Pacific Rim, and are deeply affected by tight credit, low cost margin issues, and the continued depression in the domestic housing market.

PR 736_1507 at 12-13 (July 2012). Just a few months ago, the Regional Forester wrote, "Although slight improvements occurred nationally in 2012, challenges continue for Purchasers seeking domestic markets for Alaska timber." PR 736_1593 at 1 (Feb. 20, 2013).

The point here is not to criticize the Brackley projections. Though laughably optimistic in hindsight, the authors were certainly not alone in failing to foresee the collapse of timber markets. By 2013, however, it was arbitrary for the Tongass staff to ignore the real world and continue to act as if Brackley had been prescient.

2. The Tongass staff arbitrarily picked the "expanded lumber" scenario.

As demonstrated above, even the lowest "limited lumber" scenario from the Brackley projections vastly overestimated actual demand. Nevertheless, the Tongass staff decided to upgrade the model projections from "limited lumber" to the "expanded lumber" scenario. FEIS App. A at A-8 to A-9. The entire explanation for this change in policy is that it was "due to the export policy and good overseas markets…." *Id.* This change was arbitrary.

The impact of this change on volume needs is huge. In 2014, the first full year that Big Thorne timber could potentially be cut, it raises the demand projection from 57.3 mmbf to 105.6 mmbf. *Id.* at A-7, Table A-1. The latter number is fully 5 times higher than the cut level of the last full

year, 2012. *Id.* at A-4, Figure A-1. Even this quintupling understates the impact of the change, because the Forest Service's goal is to maintain a 2-3 year supply of timber under contract. *Id.* at A-9. The change in scenario assumptions raised the under-contract goal from 267 mmbf to 429 mmbf.[4] Moreover, the "expanded lumber" scenario grows at a much faster rate looking forward, *see id.* at A-7, Table A-1, implying even a greater need for timber under contract. After running the numbers through the models, the Tongass staff concluded that the FY 2013 goal for volume offered was 143 mmbf, *id.* at A-9, which is nearly 7 times the volume cut in FY 2012. *Id.* at A-4, Figure A-1. The "limited lumber" scenario would have required a significantly lower 89 mmbf, *see* PR 736_2161 at 2, which is still more than 4 times higher than last year's actual cut.

Raising the projection to "expanded lumber" was arbitrary for several reasons. It completely ignores actual demand and continues to rely on the 2006 Brackley projections as if nothing had changed in world timber markets. Further, the two reasons given for the change are unsupported by the record. The first reason given was "the export policy," FEIS App. A at A-8, but the export policy has not changed since 2009. *See* FEIS at 3-32. The FEIS offers no explanation, in Appendix A or elsewhere, why a 2009 change in the export policy would suddenly cause demand to jump up in 2013. The second reason, "good overseas markets," *id.* App. A at A-9, is simply unexplained in the record. The agency's most recent analysis finds that "exports are not likely to keep prices from falling," a significant problem for an industry already suffering from "low cost margin issues." PR 736_1507 at 13.

3. Tongass staff multiplied the wrong number to derive the volume under contract goal.

Appendix A sets a goal for 2013 of achieving 429 mmbf under contract. FEIS App. A at A-14, Table A-2. Tongass staff determined that number by multiplying the volume-offered goal—143 mmbf—times three. *Id.* note 5; *see also id.* at A-9 ("For FY 2013, the goal for volume of timber to be offered is 143 MMBF."). This was the wrong number. The 2-3 year supply goal is a "ratio of contract volume to harvest…." TLMP FEIS at 3-510. Instead of using harvest numbers, the Tongass staff mistakenly used the volume-offered goal resulting from the Morse methodology, which is a measure of neither actual harvest nor predicted harvest. Rather, it is an offering goal taking into account projected harvest together with a variety of factors such as mill capacity, timing lags, and the share of raw material going to local processors. *See* FEIS App. A at A-8; *see*

[4] The Tongass staff calculated the under contract goal as 3 times the volume-offered goal of 143 mmbf, or 429 mmbf. FEIS App. A at A-14, Table A-2, note 5. The agency used the "expanded lumber" scenario to arrive at 143 mmbf. *Id.* at A-8 to A-9; *see also* PR 736_2161 at 2. The same methodology using the "limited lumber" scenario results in an offering goal of 89 mmbf, PR 736_2161 at 2, which tripled would have produced an under contract goal of 267 mmbf. For the reasons explained below, it was an error to use the volume-offered goal as the basis for calculating the under contract goal. Appellants follow the erroneous methodology here only to demonstrate how the change to the expanded lumber scenario actually changed the volume goals as calculated by Tongass staff.

also PR 736_2182 (Morse 2000); PR 736-2161 (explaining methodology and displaying calculations for 2013). This error was arbitrary.[5]

Had the Tongass staff looked at actual recent harvest rather than the Morse volume-offered goal, the resulting volume under contract goal would have been substantially lower. As discussed above, the industry has cut a little less than 90 mmbf in the last three years, with levels declining each year. Even if demand rebounds and stabilizes at this recent average without further decline, a 2-3 year supply would be 60-90 mmbf.

Alternatively, had the Tongass staff used the Brackley forecast numbers in place of the Morse volume-offered goal, the results would still have been much lower than the mistaken calculation in Appendix A. Using the expanded lumber scenario, a year's supply in 2013 was 98.1 mmbf. *See* FEIS App. A at A-7, Table A-1. Thus, a 2-3 year supply would be 196.2-294.3 mmbf, significantly lower than the 429 mmbf the Tongass staff sought to achieve. Had the Tongass staff stuck with the limited lumber scenario, which is closer to but still about double recent harvests, a year's supply in 2013 would have been 55.8 mmbf, *id.*, resulting in an even lower under-contract goal of 111.6-167.4 mmbf.

In other documents, the Forest Service has acknowledged that the market demand and volume under contract needs are substantially lower than calculated in the Big Thorne FEIS. In January of this year, the Alaska Region published an Issue Paper estimating that 35 mmbf of old growth logging is needed per year, Exhibit 1 at 1 (January 2013 Issue Paper), even though that volume substantially exceeds recent average cut levels and has been achieved only once in the last six years. *See* FEIS App. A at A-4, Figure A-1. Even with this generous projection of market needs, the Issue Paper concludes that a 3-year supply under contract would be 105-120 mmbf,[6] Exhibit 1 at 1, approximately one-fourth the volume calculated in the FEIS.

Thus, with 114 mmbf already under contract, *see id.* at A-14, Table A-2, there is no need for a large or rapid infusion of timber to meet recent demand levels fully. Much smaller increments starting in 2014 would suffice to sustain the industry at current levels indefinitely. And if the Tongass actually began a rapid transition away from old-growth logging, as promised in 2010, there would not be a need for any more old-growth sales at all. Investments could be redirected at more productive and less damaging sectors of the economy, including recreation, tourism, fishing, second growth management, and restoration.

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[5] Table A-2 also contains a nonsensical, circular explanation for the under-contract goal: "The goal for volume under contract is for purchasers to have three times the volume under contract…." FEIS App. A at A-14, Table A-2, note 5. Fortunately, the EIS does not attempt to apply this infinitely tripling loop.

[6] It is not clear why the document includes a range up to 120 mmbf, which would be a 3.4 year supply at 35 mmbf/year. A 2-3 year supply at that logging level would be 70-105 mmbf.

In short, the underlying justification for the Big Thorne project is significantly flawed in multiple ways. The entire old-growth logging component of the project should be abandoned.

B. The Big Thorne FEIS and the TLMP FEIS Violate NEPA by Presenting Unsupported and False Information About the Cost of Tongass Timber Sales.

While the Forest Service justifies the Big Thorne project and the entire Tongass timber sale program exclusively on the grounds of their purported economic benefits, the only information provided about the economic cost of Tongass timber sales to taxpayers is unsupported and false. The numbers reported in the FEIS are unsupported in the record and represent less than 10% of costs as determined by a review of actual Forest Service budget expenditures. The Forest Service has failed repeatedly to come clean with the public about the true cost of its timber sale program.

The FEIS reports that Alternative 3 will cost taxpayers $6 million, net of revenues, plus undisclosed NEPA costs. FEIS at 3-37. The FEIS also reports that NEPA costs are estimated at $48/mbf, *id.*, resulting in an estimated NEPA cost of $7.1 million for the selected alternative (148,900 mbf * $48/mbf). Thus, making calculations from the numbers reported in the FEIS, it would appear that the total estimated cost of the Big Thorne project to taxpayers would be $13.1 million.

The record reveals that this is a gross underestimate for a project that would supply more timber than has been cut from the Tongass in the last five years combined. The FEIS estimate is derived from a Forest Service calculation that the cost of preparing timber on the Tongass is $104/mbf including NEPA costs, *see id.*, but the only available evidence in the record suggests that the actual cost of Tongass timber sales is at least ten times that high. While the Forest Service never discloses the actual cost of the timber sale program directly, those costs have been derived from publicly available Forest Service financial documents by Joe Mehrkens, the former Regional Economist for the Alaska Region of the Forest Service. Mehkens has determined that, during fiscal years 2010-2012 (the same time period used by the Forest Service for its calculation), the Forest Service spent from $34.2 million to $47.7 million annually on the timber sale program, *see* PR 736_2241a (Greenpeace Exhibit 2b, Tab "Net Losses"), with an average expenditure of $42.5 million per year. *See* Table 1. During the same period of time, an average of 29,600 mbf was cut annually from the Tongass, resulting in an average cost of $1,435/mbf to produce timber. *See id.*

Table 1. Timber Sale Expenditures

	Timber Sale Expenditures*	Revenues*	Loss	MBF Harvested **	Expenditures/ MBF Harvested	Forest Service Expenditure Estimate/ MBF	Implied Timber Sale Expenditures from Forest Service Estimate ($103.60*MBF Harvested)
2008	$40,548,633	$415,335	-$40,133,298	28,000	$1,448.17	$103.60	$2,900,800.00
2009	$44,996,551	$605,166	-$44,391,385	28,400	$1,584.39	$103.60	$2,942,240.00
2010	$47,674,730	$1,897,909	-$45,776,821	35,400	$1,346.74	$103.60	$3,667,440.00
2011	$34,228,629	$3,354,881	-$30,873,748	32,600	$1,049.96	$103.60	$3,377,360.00
2012	$45,543,221	$1,860,412	-$43,682,809	20,800	$2,189.58	$103.60	$2,154,880.00
TOTAL 2008-12	$212,991,764	$8,133,703	-$204,858,061	145,200	$1,466.89		
TOTAL 2010-12	$127,446,580	$7,113,202	-$120,333,378	88,800	$1,435.21		
Avg. 2008-2012	$42,598,353	$1,626,741	-$40,971,612	29,040	$1,466.89		$3,008,544.00
Avg. 2010-2012	$42,482,193	$2,371,067	-$40,111,126	29,600	$1,435.21		$3,066,560.00

* Sources: Mehrkens, Tongass Budget Analysis (2012) at excel sheet "net losses" (PR 736_2241a, Greenpeace Exhibit 2); U.S. Forest Service, State of the Tongass National Forest - FY2012 (Apr. 2013) at 10, *available at* http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5416953.pdf (attached as Exhibit 7).

** Source: FEIS at 3-20, Table TSE-2 & App. A at A-4, Figure A-1.

Thus, the actual cost of producing timber is more than 13 times higher than the $104 asserted by the Forest Service for the exact same three fiscal years. Unfortunately, it is impossible to ascertain from the record how the Tongass staff came up with such a low number. The only documentation of this number, which was newly calculated between the draft and final EISs, is in a one-page document by Robert Vermillion. PR 736_1594. That document explains in only the most general terms the methodology used and the results, but it does not show any of the specific budget line items or numbers used, making it impossible to tell what the Tongass staff is counting as a timber sale cost. *See id.* Appellants have searched the record to find documentation of the Vermillion estimate but found nothing. In contrast, Mehrkens produces his entire spreadsheets, revealing the exact numbers he used to make his calculations, PR 736_2241a (Greenpeace Exhibit 2b), and explains exactly how he did it in a detailed declaration. *See* Exhibit 8 (Mehrkens declaration from 2008 TLMP appeal). Mehrkens' calculations were relied on by the district court in *Tongass Conservation Society v. Cole*, No. 1:09-cv-00003 JWS, Order and Opinion at 8 (D. Alaska Dec. 7, 2009) (attached as Exhibit 9). In short, while the Forest Service fails to disclose anywhere in the record the basis for its assertions regarding costs, Mehrkens has provided a detailed, fully supported accounting, upheld in court as a reliable source. Lacking a basis in the record, the Forest Service estimate is arbitrary.

Besides the lack of record support, even a quick glance at publicly available budget numbers reveals that the Forest Service estimate of $104/mbf is much too low. Over the three year period used to establish that number (FY 2010-2012), the average cut from the Tongass was 29,600 mbf. *See* Table 1. At $104/mbf, this would imply an annual timber sale program cost of $3.1 million. *See id*. The Forest Service spends vastly more than that each year on the timber sale program. The total Tongass budget for FY 2012, for example, was $63.9 million, Exhibit 7 at 10 (State of the Tongass FY2012), while that for FY 2011 was $58.5 million. Exhibit 10 at 10 (State of the Tongass FY2011). While of course not all of that was spent on timber, timber is the largest single program on the Tongass and in any event much greater than the 5% or so implied by the $104/mbf estimate in the FEIS. Indeed, one timber-focused item alone—"Forest Management"—accounts for $11.6 million in FY2012, and that does not include big-ticket timber-related items like logging roads (within the $15.3 million Capital Improvements item), Inventory & Monitoring and Land Management Planning ($2.7 million), "Fish, Wildlife, Subsistence, & Watershed Management (+ Thinning)" ($9.5 million), and overhead (under the $9.0 million Administrative Operations item). Exhibit 7 at 10 (State of the Tongass FY2012).

The Forest Service effectively concedes this point in the 2008 FEIS for the forest plan, which reports that out of a $46.1 million budget in FY 2007, $30.6 million was spent on "budget items that would be affected by variations in timber harvest volumes…." 2008 TLMP FEIS at 3-557 (citing NFPN, NFIM, CMRD, NFTM, and NFVW budget items from Table 3.22-28). With items including timber constituting 2/3 of the budget, it is not plausible that the timber budget would be only 5% of the total.

The Forest Service also concedes this point in the USDA Investment Strategy, cited in the FEIS at Appendix A, p. A-5.[7] In that document, the Forest Service reports having spent $19.9 million in FY10 & FY11, with plans to spend another $20.8 million in FY12 & FY13, on seven specified timber sale projects designed to supply the existing industry. Exhibit 11 at 28, Table 11 (USDA Investment Strategy). That is about $10 million per year on just a subset of the timber sale program, substantially in excess of the $3.1 million implied by the FEIS for the entire Tongass timber sale program.

Using the average cost of $1,435/mbf derived from the actual expenditures and cut levels for the entire timber sale program, the expected cost of producing the 148,900 mbf authorized in Big Thorne would be $213.7 million. This eye-popping number is fully in line with recent timber expenses on the Tongass. As discussed above, the Big Thorne Project includes more timber than was cut during the last five years combined. During those years, the Forest Service spent a combined total of $212.9 million on the timber sale program, so it is reasonable to expect the agency would spend roughly the same, spread out over many years, to implement the entire Big Thorne Project. Subtracting the expected revenue of $2.6 million from the Big Thorne timber sales, *see* FEIS at 3-37 (Table TSE-14, Alternative 3), produces a net cost to taxpayers of

[7] Although cited in the FEIS, the document does not appear to be in the record. It is attached as Exhibit 11.

$211.1 million for the Big Thorne project. In short, the public will get an estimated 1.2¢ in return for every dollar spent on the Big Thorne project ($2.6 million revenue ÷ $213.7 million cost). This loss, too, is in line with recent past experience, though actually somewhat worse due to relatively poor economics of the Big Thorne project. In the last five years, timber sale revenues have been only 3.8% of expenditures. *See* Table 1 ($8.1 million revenues from timber sales costing $213.0 million in FY2008-2012).

Because the $104/mbf estimate was first produced after publication of the DEIS, members of the public had no opportunity to comment on it. Nevertheless, commenters addressed the inadequacy of the older estimates in the DEIS and cited the Mehrkens calculations. While the FEIS never addresses the Mehrkens calculations by name, the following comment appears to be the entire response to his careful and detailed analysis: "A review of the budget information sent in response to the FOIA request revealed that the costs considered in the reference attached to the comment included costs other than those associated with timber harvest contracts." FEIS, App. B at B-109. Assuming this was intended as a response to the Mehrkens calculations, it is merely another assertion unsupported by the record. We can find nothing in the record explaining which costs cited by Mehrkens the agency claims are not associated with logging. In short, the Tongass staff neither documents what costs it used to arrive at its calculations nor what costs it believes were improperly included in those of Mehrkens. In contrast, Mehrkens fully documents, in great detail, exactly what numbers he used. Lacking record support, the assertions in the FEIS are arbitrary and violate NEPA.

The failure to disclose true public costs associated with the Big Thorne Project is fundamental to the Forest Supervisor's decision. The entire purpose and need for the project, and for the Tongass timber sale program in general, is economic: the timber sale is justified solely on the ground that it will ostensibly produce economic opportunity for Southeast Alaska residents. *See, e.g.*, FEIS at 1-4 to 1-5. Thus, the public costs disclosed in the FEIS are critical to the analysis. The underlying policy question is whether the jobs created by the project are worth both the high cost to taxpayers and the extreme ecosystem risks the project poses. False and misleading information on costs skews this analysis. "Inaccurate economic information may defeat the purpose of an EIS by 'impairing the agency's consideration of the adverse environmental effects' and by 'skewing the public's evaluation' of the proposed agency action." *NRDC v. U.S. Forest Serv.*, 421 F.3d 797, 811 (9th Cir. 2005) (*quoting Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 446 (4th Cir.1996)); *see also id.* at 811-12 ("An EIS that relies upon misleading economic information may violate NEPA if the errors subvert NEPA's purpose of providing decisionmakers and the public an accurate assessment upon which to evaluate the proposed project.") (*quoting Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 235 F.Supp.2d 1143, 1157 (W.D. Wash. 2002)). With sequestration and high public concern over budget deficits, the question of public cost is as important as ever.

Using the full cost numbers calculated by Mehrkens and not effectively rebutted by the Tongass staff, the cost of the project is unconscionable. Assuming the FEIS's mid-range estimate of 761 direct jobs created by Alternative 3, *see* FEIS at 3-36 (Table TSE-13), the cost of the project is

$277,398 per job created ($211.1 million net cost ÷ 761 jobs). This result is also in line with recent costs on the Tongass. *See* PR 736_2241a (Greenpeace Exhibit 2b) (Mehrkens spreadsheet, "Net Losses" tab). This is many times more than these jobs pay and cannot be justified on economic grounds or otherwise.

This problem is not isolated to Big Thorne, though advancing a single project with more than five years of timber highlights the extreme and unwarranted costs of Tongass timber sales. It is a problem inherent in the timber sale program for the Tongass and appealed in the 2008 forest plan decision. While the 2008 plan used the older numbers, they did not differ significantly from the numbers at issue in Big Thorne and suffered from the same problems. Appellants hereby incorporate by reference the arguments made on this point in the forest plan appeal filed by The Wilderness Society. *See* The Wilderness Society, Notice of Appeal and Statement of Reasons at 55-57, Appeal No. 08-13-00-0028 (May 15, 2008).

The failure to disclose the true costs of the Big Thorne project and the Tongass timber sale program renders inadequate both the FEIS and the TLMP FEIS.

III. THE BIG THORNE PROJECT AND TLMP VIOLATE NEPA AND NFMA BECAUSE THEY DO NOT MEET THE FOREST SERVICE'S OBLIGATIONS WITH REGARD TO ALEXANDER ARCHIPELAGO WOLVES AND SITKA BLACK-TAILED DEER.

A. Factual Background Regarding Alexander Archipelago Wolves and Sitka Black-Tailed Deer on Prince of Wales Island and the Tongass.

On Prince of Wales Island, two species play a critical role in helping to define the unique biodiversity of the Tongass National Forest – the Alexander Archipelago wolf (wolf) and the Sitka black-tailed deer (deer). These species are linked inextricably to the overall abundance and health of old-growth forest, because deer provide the wolf's primary prey and depend upon low elevation old-growth forest to survive the winter. Given their importance to the Tongass ecosystem, the Forest Service has designated both the wolf and deer as Management Indicator Species pursuant to the National Forest Management Act (NFMA), 16 U.S.C. § 1600 *et seq*. *See* FEIS at 3-110 (deer), 3-113 (wolves). The Forest Service has also implemented specific standards and guidelines in TLMP that apply to wolves and deer habitat, which are discussed in detail below. As TLMP explains, the "[s]tandards and guidelines [in the plan] represent minimum achievement levels[.]" TLMP at 1-2 (emphasis added).

The next several sections of the appeal address the Forest Service's failure to meet its obligations regarding wolves and deer pursuant to the requirements of NFMA and TLMP when it issued the ROD and FEIS. David Person, Ph.D, a retired biologist from Alaska Department of Fish & Game with more than 22 years of experience studying wolves and deer in Southeast Alaska and Prince of Wales Island in particular, prepared a statement outlining his concerns regarding the Big Thorne Project (the Person Statement). Appellants incorporate the Person Statement and its exhibits herein.

1. *The wolf population on Prince of Wales Island, including the Big Thorne project area, has declined dramatically due to the loss of old growth deer habitat and the pressures of hunting and trapping.*

Wolves on Prince of Wales Island and the surrounding islands (the Prince of Wales Archipelago) "make[] up a large percentage of wolves in Southeast Alaska, perhaps as much as 30% (Person et al. 1996)." Person Statement at ¶13.d. "Wolves inhabiting Prince of Wales Island are genetically isolated from other populations in Southeast Alaska (Person 2001; Weckworth et al. 2005, 2010, 2011)." FEIS at 3-113; *see also* Person Statement at ¶13.d (explaining they are a "genetically and morphologically distinct group of the wolves within the Tongass"). As a result these considerations, "wolves on the Prince of Wales Archipelago are an important part of the overall population in the Tongass." Person Statement at ¶13.d.

The population of wolves on Prince of Wales Island has declined substantially since the middle of the 1990s, especially within the north-central portion of Prince of Wales Island. Person Statement at ¶13. Indeed, the FEIS acknowledges the U.S. Fish and Wildlife Service (USFWS) is currently conducting a 90-day review of a petition to have the wolf listed as threatened or endangered under the Endangered Species Act. FEIS at 3-114.

The Forest Service explained in the FEIS that in the mid-1990s "approximately 250-350 wolves were estimated to inhabit Prince of Wales Island and the surrounding islands (Person et al. 1996)." FEIS at 3-113; *see also* Person Statement at ¶15 (explaining that Dr. Person "estimated the wolf population on the Prince of Wales Archipelago during autumn 1995 to be approximately 300-350 animals"). The FEIS, however, goes on to explain that "[c]urrent estimates of the wolf population in GMU 2 are lacking[.]" FEIS at 3-113; *see also* Person Statement at ¶15 ("No formal wolf population estimations have been conducted since 2004."). The FEIS states simply "the population on Prince of Wales Island may be lower than in previous years based on the lack of scats observed during 2009 and 2010 field effort (e.g., 30-35 scats collected versus 154 collected during a 1993-1994 effort; Person 2010, Kohira 1995)." FEIS at 3-113. The FEIS reports anecdotal observations that "suggested the wolf population had declined to as few as 150 wolves in [Game Management Unit (GMU)]2." FEIS at 3-313—3-114. As explained below, however, even that observation is now outdated based on actual field research and observations. *See, e.g.,* Person Statement at ¶¶16, 18, 19 (describing 2010-2013 research and conclusions).

In the mid-1990s, "the Big Thorne project area had the habitat to support 45-50 wolves." Person Statement at ¶17. In the Fall of 2012, Dr. Person's team "determined through DNA hair trapping and radio-collaring work that there were approximately 29 wolves in the Big Thorne Project area." *Id*. at ¶18. "During the 2012 hunting season, trappers killed at least fifteen wolves in the Big Thorne Project area, but that only accounts for legal, reported take." *Id*. at ¶19. By the Spring of 2013, his team "could only account for six to seven wolves left in the Big Thorne project area." *Id*. at ¶19.

Wolves in the Big Thorne Project area show other signs of decline as well. For example, the overall number of packs in the Big Thorne area also has declined. In the mid-1990s, "the Big Thorne Project area had the habitat to support approximately three separate packs and a portion of fourth pack. Person Statement at ¶17. In 2010, Dr. Person checked "eleven known, previously used dens of [the] five wolf packs" in the Big Thorne Project area and found "no denning activity." *Id*. at ¶16 (explaining that researchers "found very few signs of wolves," noting "there was no indication of use on wolf trails that previously had been used regularly, and some were starting to grow over"). By Fall of 2012, Dr. Person's team found "only two remaining packs in the area." *Id*. at ¶18. One of those packs, however, was so small it appeared to be struggling to raise a litter of pups. *Id*. The larger pack had "only had two breeding females" and "[b]oth females were killed last year; one was trapped legally and the other trapped illegally." *Id*.

The decline in wolves on Prince of Wales Island in recent years, including the Big Thorne Project area, is "as a result of old-growth logging, which degrades deer winter habitat, road building, which provides access for hunters and trappers, and high levels of wolf mortality (because roads increase human access) from legal and illegal hunting utilizing both open and closed roads." Person Statement at ¶13.a. "On Prince of Wales Island, more than 50% of the island is already at or approaching levels of logging that will strongly increase the risk that the island will only be capable of supporting wolf packs that function as population sinks." *Id*. at ¶13.b. With regard to old growth deer habitat, "[t]he Big Thorne Project will harvest much of the best remaining mid and low elevation deer winter habitat in this part of Prince of Wales Island, which will most likely, over time, result in further declines in deer and wolf populations." *Id*. at ¶13.b. And as to hunting and trapping, one study documented that 87% of mortality of wolves on Prince of Wales Island already comes from hunting and trapping. *Id*. at ¶26 (citing Person and Russell 2008).

During the comment process, the USFWS expressed "concern[] that wolf mortality has been excessive across the [Big Thorne] project area and other areas of Prince of Wales Island." PR 736_2241 (USFWS Comment Letter at 3) (describing "documented unsustainable annual mortality"). *Id*. The USFWS observed that:

> In a more recent study of wolf mortality on Prince of Wales Island, Person and Logan (2012) found that unsustainable harvest (defined as greater than 3 wolves per 300 square kilometers) had occurred in many areas across the island, including all five Wildlife Analysis Areas in the Big Thorne Project area. Chronic unsustainable harvest (defined as unsustainable harvest at least five times between 1985 and 2009) was documented in four of the Wildlife Analysis Areas in the project area. Three of these Wildlife Analysis Areas have had multiple years of annual harvest high enough to cause wolf pack depletion (defined as greater than seven wolves per 300 square kilometers).

Id.

In light of the impacts to wolf and deer habitat and populations described above and in the Person Statement, "Prince of Wales Island, including the Big Thorne Project area, is at a tipping point with regard to a viable predator-prey dynamic between wolves and deer." Person Statement at ¶31. "That collapse could result in wolf numbers well below minimum viability both demographically and genetically, which would eventually result in their extirpation or extinction within the Prince of Wales Archipelago." *Id*. at ¶13.d.

2. *TLMP establishes overall habitat and wildlife requirements, as well as specific standards and guidelines regarding wolves and deer.*

a. TLMP's requirements for ensuring viable well-distributed populations

In TLMP, the Forest Service describes as one of its desired landscape attributes is that "[v]iable populations of native and desired non-native species and their habitat are maintained" and that [v]iable populations of sensitive and rare species and their habitats are considered and maintained as to preclude the need for listing species as threatened or endangered." TLMP at 2-1 ("There are no threatened or endangered species on the Forest."); *see also id*. at 2-1 ("Opportunities for hunting, trapping, and viewing game species are being provided. World-class wildlife resources such as brown bears and wolves, considered threatened or endangered in the lower 48 states, are relatively abundant and available for human use and enjoyment in perpetuity.").

To achieve these desired attributes in the Tongass, the Forest Service must manage the Tongass is such a way as to "[m]aintain the abundance and distribution of habitats, especially old-growth forests, to sustain viable populations in the planning area" and "[m]aintain habitat capability sufficient to produce wildlife populations that support the use of wildlife resources for sport, subsistence, and recreational activities." TLMP at 2-9. TLMP also identifies specific objectives with regard to biodiversity, including the need to "[p]rovide sufficient habitat to preclude the need for listing species under the Endangered Species Act, or from being listed as Sensitive due to National Forest habitat conditions." TLMP at 2-4.

The FEIS explains that in TLMP:

> Specific standard and guidelines were added to address wolves. See the 2008 Forest Plan at 4-95 (WILD1.XIV). Standards and guidelines that promote deer habitat capability in the matrix and limit road densities, and planned level of timber harvest would have a high likelihood of maintaining viable and well-distributed populations of wolves.

FEIS at B-35.

b. TLMP's deer habitat capability standards and guidelines

TLMP establishes requirements to provide sufficient deer habitat with the aim of maintaining sustainable wolf populations. *See* TLMP at 4-95 (XIV.A.2). More specifically, TLMP's wolf standards and guidelines provide that:

> Provide, where possible, sufficient deer habitat capability to first maintain sustainable wolf populations, and then to consider meeting estimated human deer harvest demands. This is generally considered to equate to the habitat capability to support 18 deer per square mile (using habitat capability model outputs) in biogeographic provinces where deer are the primary prey of wolves. Use the most recent version of the interagency deer habitat capability model and field validation of local deer habitat conditions to assess deer habitat, unless alternate analysis tools are developed. Local knowledge of habitat conditions, spatial location of habitat, and other factors need to be considered by the biologist rather than solely relying upon model outputs.

TLMP at 4-95 (XIV.A.2).

c. TLMP's road densities standards and guidelines

TLMP also establishes road density requirements for the Tongass when it may be necessary to reduce harvest-related mortality risk where locally unsustainable wolf mortality has been identified. The road density standards and guidelines identify several mechanisms that can be employed to meet the Forest Service's obligation "to ensure locally viable wolf populations." TLMP at 4-95 (XIV.A.1.c). More specifically, TLMP's wolf standards and guidelines provide that:

> Where road access and associated human-caused mortality has been determined, through an interagency analysis, to be a significant contributing factor to locally unsustainable wolf mortality, incorporate this information into Travel Management planning and hunting/trapping regulatory planning. The objective is to reduce mortality risk and a range of options to reduce this risk should be considered. In these landscapes, both open and total road density should be considered. Total road densities of 0.7 to 1.0 mile per square mile or less may be necessary. Options shall likely include a combination of Travel Management regulations, establishing road closures, and promulgating hunting and

> trapping regulations to ensure locally viable wolf populations. Local knowledge of habitat conditions, spatial locations of roads, and other factors need to be considered by the interagency analysis rather than solely relying upon road densities. Road management objectives would be developed and implemented through an interdisciplinary Access and Travel Management or comparable process. (See Transportation Forest-wide Standards and Guidelines.) Suggested wolf hunting and trapping changes would be developed and forwarded to the Federal Subsistence Board and the Alaska Board of Game.

TLMP at 4-95 (XIV.A.1.c). According to the TLMP FEIS, the road density "metric [of 0.7 to 1.0 mile per square mile or less] is appropriately applied at the project level areas that are the approximate size of an average wolf pack territory (about 74,000 acres; Person et al. 1996)." TLMP FEIS at 3-285.[8]

3. USFWS and the State of Alaska recommended that the Forest Service should exclude and/or modify prescriptions for units containing important deer habitat from the Big Thorne Project.

During the public review and comment process, commenters expressed concern that the Big Thorne Project area is already well below TLMP's standards and guidelines for deer habitat and road densities. Yet, despite these concerns, the Forest Service targeted logging most of the remaining high quality deer habitat in the project area, including much of the last remaining refuges of deer winter habitat. *See, e.g.,* AR 736_2241A (Ex. 12, Doc. 55 at .pdf 1) (David Person explaining that the Big Thorne Project "goes further to remove the most important winter habitat for migratory deer in the [Thorne] watershed.")

USFWS, for example, expressed "concerned that not only is deer habitat capability already well below the Forest Plan guideline level across the project area (i.e., ranging from 6 to 16 deer per square mile, depending on the Wildlife Analysis Area), under Alternatives 2 through 4, deer habitat is projected to decline further (Draft EIS, p. 3-175)." PR 736_2241 (USFWS Comment Letter at 5); *see also* PR 736_2241 (State of Alaska Comment Letter at 6) (State explaining that it is "concerned that none of the [Wildlife Analysis Areas] within the project area currently meet the habitat capability to support 18 deer per square mile (based on model outputs)"). USFWS ultimately expressed "concern[] that at the larger biogeographic province scale, deer habitat capability is projected to decline under all action Alternatives from 15 to 14 deer per square mile (Draft EIS, p. 3-174)." PR 736_2241 (USFWS Comment Letter at 5).

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[8] The TLMP FEIS analyzed total road densities by Wildlife Analysis Area (WAA), "the average size of which is 90,000 acres." TLMP FEIS at 3-285.

USFWS urged the Forest Service to "minimize potential impacts to Sitka black-tailed deer by avoiding harvest of forest stands that provide important winter habitat and elevational migration corridors for that species." PR 736_2241 (USFWS Comment Letter at 5). With regard to deep snow winter range, USFWS explained its concerns as follows:

> All Alternatives in the Final EIS need to avoid harvest of stands identified as deep snow winter range for deer. The greatest impact to deer habitat capability results from clearcut logging of low-elevation, high-volume stands, especially those with south-facing exposure. Such stands are important during deep snow winters because they effectively intercept snow, providing thermal and predator escape cover, and access to forage. All or parts of many units include deep snow winter range. For example, all of units 463, 464, 465, and 466 near Luck Lake are classified as deep snow deer winter range (Draft EIS, Vol. IV). Portions of several other units across the project area also provide such habitat. We recommend these stands be excluded from all action Alternatives in the Final EIS to retain as much deer habitat capability as possible.

Id.

As to elevational migration corridors, USFWS explained:

> We recommend isolated elevational migration corridors be excluded from all action Alternatives in the Final EIS. Maintenance of access routes between high-elevation summer habitat and low-elevation winter range is likely to be critical in heavily fragmented landscapes like the project area. In some watersheds, deer rely primarily on relatively small remaining stands of productive old growth forest--which are now isolated between extensive second growth stands--as elevational migration corridors. Such corridors would be further fragmented or eliminated by logging units such as 183 and 184 (Baird Peak), 469 (Luck Lake), 83, 84, 424, 440, and 443 (North Thorne), 35 (Rio Beaver), 54 and 55 (Goose Creek), and 15, 17, 18, and 25 (Steelhead Creek).

Id. at 5-6.

The State raised similar concerns explaining that "[g]iven the recognized importance of travel corridors and winter range to the sustainability of deer, [the State] recommend[ed] the USFS

consider modifying (under Alternatives 2 and 5) or dropping (under Alternative 4) additional harvest units." PR 736_2241 (State of Alaska Comment Letter at 6). As the State explained:

> The [Alaska Department of Fish and Game] identified the following units as being important for maintaining watershed scale connectivity for deer movements and overwinter survival, given their proximity to previously harvested units: within WAA 1315 Units 121, 123, 124, 133, 135, 138, 139, 153, 182, 183, and 184; within WAA 1318 Units 4, 5, 6, 8, 12, 14, 15, 16, 17, and 19; within WAA 1319 Units 89, 95, 98, 105, 106, 108, 111, and 112; and within WAA 1420 Units 190, 194, 201 and 203. For these same reasons, we recommend that the following units be dropped in the FEIS under Alternative 3: within WAA 1319 Units 443, 444, and 446; and within WAA 1420 Units 466, 469, 470, and 471 (also see Timber Economics section above).

Id.; see *also* AR 736_2241A (Ex. 12, Doc. 55 at .pdf 4) (David Person explaining that "[Alaska Department of Fish and Game] need[ed] to pay attention to what lands are left and where they are. Do they provide vertical connectivity for migratory deer during winters with snow and sufficient low elevation habitat to prevent losses of deer like we observed in the Maybeso during winters 2006-2008?").

B. <u>The Big Thorne Sale is Inconsistent with TLMP's Requirements to Ensure a Viable Well-Distributed Population of Wolves in the Tongass.</u>

TLMP establishes desired landscape attributes for the Tongass and, of particular importance, provides that forest management should provide that:

> Viable populations of native and desired non-native species and their habitat are maintained and are not threatened by invasive species. Viable populations of sensitive and rare species and their habitats are considered and maintained as to preclude the need for listing species as threatened or endangered. There are no threatened or endangered species on the Forest.

TLMP at 2-1; *see also id.* (TLMP explaining that "[w]orld-class wildlife resources such as brown bears and wolves, considered threatened or endangered in the lower 48 states, are relatively abundant and available for human use and enjoyment in perpetuity").

To accomplish the desired attributes, TLMP provides that the Tongass must be managed in such a way as to "[p]rovide the abundance and distribution of habitat necessary to maintain viable populations of existing native and desirable introduced species well-distributed in the planning area (i.e., the Tongass National Forest). (Consult 36 CFR 219.19 and 36 CFR 219.27.)"

TLMP at 4-89 (WILD1.II.B.); *see also id.* at 3-62 (WILD1.A) ("[m]aintain contiguous blocks of old-growth forest habitat in a forest-wide system of old-growth reserves to support viable and well-distributed populations of old-growth associated species and subspecies"). As the FEIS explains, "[t]he Forest Service . . . specifically incorporated the requirement to maintain viable populations into [TLMP's] standards and guidelines," FEIS at B-35 (citing TLMP at 4-89 (WILD1.II.B), including "[s]pecific standard and guidelines . . . to address wolves," *id.* (citing TLMP at 4-95 (WILD1.XIV)). According to the FEIS, meeting TLMP's "[s]tandards and guidelines that promote deer habitat capability in the matrix and limit road densities, and planned level of timber harvest would have a high likelihood of maintaining viable and well-distributed populations of wolves." FEIS at B-35.

The 1982 Forest Service planning regulations, which TLMP incorporates, *see* TLMP at 4-89 (WILD1.II.B.), state in relevant part:

> Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided 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 (1982). *See also* 36 C.F.R. § 219.27(a)(6) (1982) (extending the "viable populations" mandate to "implementation . . . of forest plans," e.g. timber sales). This law "requires planning for the entire biological community. . . ." *Seattle Audubon Soc'y v. Moseley*, 798 F. Supp. 1473, 1483 (W.D. Wash. 1992), *aff'd sub nom., Seattle Audubon Soc'y v. Espy*, 998 F.2d 699 (9th Cir. 1993). It establishes the "Forest Service's duty to protect wildlife" and imposes a "substantive limitation on timber production." *Seattle Audubon Soc. v. Moseley*, 798 F. Supp. 1484, 1489 (W.D. Wash. 1992), *aff'd sub nom., Seattle Audubon Soc. v. Espy*, 998 F.2d 699 (9th Cir. 1993) (quoting Charles F. Wilkinson & Michael H. Anderson, *Land and Resource Planning in the National Forests*, 64 Or. L. Rev. 1, 296 (1985)).

The requirement to "insure" that forest plans and implementing timber sales maintain viable wildlife populations imposes a stringent obligation on the Forest Service. *See Idaho Sporting Congress v. Rittenhouse*, 305 F.3d 957, 961 (9th Cir. 2002) ("In providing for multiple uses, the forest plan must comply with the substantive requirements of the [NFMA] designed to ensure ... the continued viability of wildlife in the forest…." (*citing* 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19 (1999)). To comply with this obligation, the Forest Service should "use[] all the scientific

data currently available." *Inland Empire Pub. Lands Council v. U.S. Forest Service*, 88 F.3d 754, 762 (9th Cir. 1996).

Here, the "most experienced and knowledgeable scientist in the United States with respect to wolves and the wolf-deer predator-prey ecological communities in Southeast Alaska," Person Statement at ¶12, has concluded that "the Big Thorne [P]roject puts the viability of the wolf population on the Prince of Wales and the surrounding islands (the Prince of Wales Archipelago) in doubt." *Id*. at ¶13.b.; *see also id*. at ¶13 ("the Big Thorne timber sale, if implemented, represents the final straw that will break the back of a sustainable wolf-deer predator-prey ecological community on Prince of Wales Island, and consequently, the viability of the wolf population on the island may be jeopardized"). Dr. Person explains that "[o]n Prince of Wales Island, more than 50% of the island is already at or approaching levels of logging that will strongly increase the risk that the island will only be capable of supporting wolf packs that function as population sinks." *Id*. at ¶13.b. As Dr. Person describes:

> The cumulative effects of 60 years of clear-cut logging plus the Big Thorne project could result in the ecological collapse of the predator-prey system and result in wolf numbers well below minimum viability both demographically and genetically, which would eventually result in their extirpation or extinction within the Prince of Wales Archipelago.

Id. at ¶13.d.

Dr. Person ultimately concludes that:

> Based on the impacts to wolf and deer habitat and populations, described above, Prince of Wales Island, including the Big Thorne project area, is at a tipping point with regard to a viable predator-prey dynamic between wolves and deer. The wolf populations on Prince Wales have been declining precipitously, and wolves are already facing the possibility of extinction on Prince of Wales Island. Big Thorne logging, if it goes forward, will remove the most important remaining deer winter habitat in many of the affected watersheds, which will further reduce the abundance of deer in the project area (especially following severe winters), perhaps for decades to come. As a result, the predator-prey relationship between wolves and deer on Prince of Wales is likely to collapse.

Person Statement, ¶31.

Additionally, losing wolves on Prince of Wales Island or the Prince of Wales Archipelago would also have serious consequence for the wolves' overall numbers and geographic distribution throughout the Tongass. Wolves on the "Prince of Wales Archipelago make[] up a large percentage of wolves in Southeast Alaska, perhaps as much as 30% (Person et al. 1996)." *Id*. at ¶13.d. Additionally, they are "genetically and morphologically distinct" from other wolves in the Tongass. *Id*. They are also physically "isolated from other wolves in the Tongass and, as a result, if wolves on Prince of Wales Island are extirpated or reduced to a small population, rescue or recolonization by dispersing wolves from the mainland is unlikely." *Id*. at ¶33. These considerations lead Dr. Person to conclude that "wolves on the Prince of Wales Island and the Prince of Wales Archipelago are an important part of the overall wolf population in the Tongass." *Id*. at ¶13.d. Thus, these wolves play a unique and important role in the overall Tongass wolf population, contributing almost a third of the population as well as genetic and morphological diversity. Put simply, losing wolves on Prince of Wales Island or the Prince of Wales Archipelago would mean that viable populations of wolves are not well-distributed throughout the Tongass. *See* 36 C.F.R. § 219.19 (1982).

In sum, the Big Thorne ROD and FEIS violate the obligation imposed by NMFA, its regulations and TLMP to "insure" viable wildlife wolf populations that are well distributed throughout the Tongass are maintained.

C. The Big Thorne Project Does Not Satisfy TLMP's Standards and Guidelines for Wolves.

The Forest Service is misapplying TLMP's standards and guidelines with regard to wolves. The Forest Service's approach to the Big Thorne Project is to acknowledge the project area and/or the biogeographical province currently do not meet TLMP standards with regard to wolves (i.e. deer habitat capability and road densities), but rather than taking steps to avoid exacerbating those problems concludes it is free to drive the area even farther out of compliance. As a result, the Forest Service's approval of the Big Thorne Project violated TLMP's standards and guidelines and made a bad situation even worse.

1. The Big Thorne Project does not meet TLMP's deer habitat capability standards and guidelines for wolves.

The Forest Service acknowledges that "[t]he analysis for the Big Thorne FEIS showed that both currently and with the selection of any alternative, including the no action alternative, would result in deer habitat capabilities below 18 deer per square mile." FEIS at B-142. According to the Forest Service, "[t]he 18 deer per square mile is what is generally considered to necessary to maintain populations of wolves and deer while providing for sustainable harvest by humans and wolves (Person, et al., 1996)." FEIS at B-142. With the approval of the Big Thorne Project, however, both project area and the biogeographical province fall even farther out compliance. As explained below, this is unlawful.

TLMP requires the Forest Service to "[p]rovide, where possible, sufficient deer habitat capability to first maintain sustainable wolf populations, and then to consider meeting estimated human deer harvest demands." TLMP at 4-95 (XIV.A.2). As an initial matter, the Forest Service recognized when it adopted TLMP that there were some places in the Tongass where this would not apply because even prior to the beginning of commercial logging in 1954 it was not possible due to existing natural conditions or because wolves in other areas prey heavily on species other than deer. *See* TLMP FEIS at 3-283; *see also id.* at 3-284 (Table 3.10-9 n.4) (estimating that 69 out of 122 WAAs (57%) were to have had deer habitat capabilities <18 deer per square mile in 1954). But as to those parts of the Tongass where it was possible (i.e., deer are the primary prey of wolves and the natural conditions could provide sufficient deer habitat) TLMP's standards and guidelines apply to "maintain sustainable wolf populations" TLMP at 4-95 (XIV.A.2), as well as viable and well-distributed populations, *see* FEIS at B-36 (explaining that TLMP's "[s]tandards and guidelines that promote deer habitat capability in the matrix . . . would have a high likelihood of maintaining viable and well-distributed populations of wolves").

TLMP establishes that this amount of habitat "is generally considered to equate to the habitat capability to support 18 deer per square mile (using habitat capability model outputs) in biogeographic provinces where deer are the primary prey of wolves." TLMP at 4-95 (XIV.A.2); *see also* TLMP FEIS at 3-282 ("The Wolf standards and guidelines state that habitat to support of density of 18 deer per square mile <u>is necessary</u> to provide wolves and hunters with adequate foraging/hunting opportunities.") (emphasis added). TLMP also makes clear that the Forest Service can supplement deer habitat modeling results using "field validation of local deer habitat conditions to assess deer habitat." TLMP at 4-95 (XIV.A.2). Additionally, "[l]ocal knowledge of habitat conditions, spatial location of habitat, and other factors need to be considered by the biologist" could result in difference localized conclusions regarding the needed habitat capacity. *Id*. "The Wolf guideline is intended to apply to biogeographic provinces where deer are the primary prey of wolves." TLMP FEIS at 3-283; *see also FEIS* at 3-180 ("the intent of this guideline was to apply to a larger spatial scale (i.e., multiple WAAs or biogeographical province").

With regard to the deer habitat at the project level, the FEIS explains that Big Thorne, when combined with other logging, will reduce "modeled deer densities to 4.8 to 14.8 deer per square mile at project completion, depending on the WAA." FEIS at 3-186 (describing that at stem exclusion "deer habitat capability would be reduced by a total of 9 to 20 percent from current conditions"). The Forest Service's analysis "equates to a cumulative reduction of 11.0 deer per square mile in WAA 1420, 7.8 deer per square mile in WAA 1315, 6.5 deer per square mile in WAA 1319, and 1.1 deer per square mile in WAA 1318 from original (1954) habitat capability (Table WLD-26)." *Id*. These deer habitat losses at the project level are significant and they translate into unlawful declines at the broader spatial scale addressed by TLMP.

The Forest Service admits that at the biogeographic province level, the North Central Prince of Wales Island biogeographic province is not meeting the deer habitat capacity standards and the

Big Thorne Project will further compromise the province's ability to meet these standards. *See* FEIS at 3-181 ("At the biogeographic province scale, deer habitat capability is currently 14.6 deer per square mile, decreasing to 14.4 deer per square mile under all action alternatives at project completion (a reduction of approximtely1 percent) and to between 13.9 to 14.0 deer per square mile at stem exclusion for the action alternatives (a total reduction of 4 to 5 percent; Table WLD-26)."). In response to comments, the FEIS confirms that "'[d]eer habitat capability in the biogeographic province as a whole would remain at 15 deer per square mile at project completion, and would be reduced to 14 deer per square mile at stem exclusion' is correct." FEIS at B-144 (quoting the DEIS's analysis of cumulative effects for the no action alternative); *see also* DEIS at 3-174. The FEIS also explains that "[a]cross the North Central Prince of Wales Island biogeographic province existing deer habitat capability would be reduced by 1 percent after project implementation and by 4 percent at stem exclusion (Table WLD-24)." FEIS at 3-177.

The reductions in deer habitat are, of course, even more severe when applied at the level of multiple WAAs. *See*, *e.g.*, FEIS at 3-181 ("Taking into account only WAAs in the northern portion of Prince of Wales Island, deer habitat capability (currently 13.6 deer per square mile) would decrease to between 13.4 and 13.6 deer per square mile at project completion, and to between 12.9 and 13.1 deer per square mile at stem exclusion, depending on alternative."). Notably, the FEIS explains that: "The DEIS p. 3-177 says 'Thus, regardless of the alternative chosen, all would result in sufficient deer habitat within the biogeographic province and in the WAAs surrounding the project area to maintain a sustainable wolf population.' This statement is incorrect and has been deleted in the FEIS." FEIS at B-144. The FEIS now acknowledges that "[a]ccordingly, there would be some reduction in the ability of [the Big Thorne] project area WAAs to maintain a sustainable wolf population, based on deer habitat capability alone." FEIS at 3-190.

The FEIS apparently justifies these reductions, at least in part, on the fact that "[n]one of the project area WAAs alone provides a habitat capability of 18 deer per square mile, generally considered under the Forest Plan to be sufficient to maintain sustainable wolf populations and taking into account hunting." FEIS at 3-190. It continues by explaining that "the Forest Plan standard and guideline was intended to apply at a broader scale." FEIS at 3-190. The Forest Service's explanations, however, are inconsistent with TLMP's requirements.

The Forest Service apparently interprets TLMP's deer habitat capability standard as allowing the Forest Service to continue to log in areas that affect the capability of a province or a collection of WAAs to meet the 18 deer per square mile metric (even it means if has consequences for the sustainability and/or viability of wolves in the project area and/or the province level). Based on the fact that the deer habitat capability standard only applies "where possible," TLMP at 4-95 (XIV.A.2), the Forest Service appears to argue that is not possible here because the Big Thorne Project area is already below the metric as a result of the past decades of logging. This is not consistent with the requirements of the standard and guidelines or TLMP's overall goals to ensure the viability of well-distributed populations. As explained above,

"where possible" refers to natural conditions that make it impossible to accomplish and/or areas where deer are not the primary prey for wolves, not reductions in habitat caused by logging. The Forest Service's interpretation, moreover, renders the deer habitat capability standard meaningless; it means logging can continue even those areas that have suffered the worst habitat losses and, as a result, it does not apply in the areas of the Tongass that need it the most.

The Forest Service notes that the TLMP FEIS expected habitat capacity declines as a result of the plan's implementation. *See* FEIS at B-143 ("In addition, both the 1997 and 2008 Forest Plans disclose that deer density, as measured using habitat capability model outputs, in a number of WAAs may fall below the standard after full implementation of the Forest Plan (Table 3-111, USDA 1997, pp. 3-77 through 3-79 and Table 3.10-9, USDA 2008, pg. 3-284) and that the deer density in some WAAs is naturally low because of poor deer habitat."). That analysis, that certain WAAs, which "currently meet the wolf guideline, . . . may not meet it in the future after 100+ years of implementation [of TLMP's logging], are located in the North Central Prince of Wales and Revilla Island/Cleveland Peninsula biogeographic provinces." TLMP FEIS at 3-284. The TLMP FEIS never contemplated that deer habitat capability across entire biogeographic provinces or groups of WAAs collectively would be reduced to such a level as to make it impossible to support a sustainable population in those larger spatial areas. More specifically, it never acknowledges that the Forest Service expected to see sustainability or even viability concerns across Prince of Wales Island and the Prince of Wales Archipelago. *See* Person Statement at ¶¶ 13, 13.d, 34.

TLMP does say that actual habitat capability in an area may be more or less than the 18 deer per square mile metric depending on local conditions, but there is no analysis to justify that conclusion here. *See* TLMP at 4-95 (XIV.A.2) (explaining that "field validation of local deer habitat conditions [can be used] to assess deer habitat" and "[l]ocal knowledge of habitat conditions, spatial location of habitat, and other factors need to be considered by the biologist rather than solely relying upon model outputs"). Here, the Forest Service does not base its decision to compromise habitat throughout the Big Thorne Project area or the North Central Prince of Wales biogeographic provinces based on field validation, local knowledge of habitat conditions, spatial location of habitat or other biological considerations.[9] *See, e.g.,* FEIS at B-142—B-143, 3-185—3-187 (describing direct and cumulative effects on deer habitat density and the consequence for wolves). Stated differently, the Forest Service is not justifying a different

[9] Instead, the Forest Service apparently relied on work that predates TLMP justify its decision to approve logging that drop both the project area and the biogeographic province below the 18 deer per square mile metric. *See* FEIS at B-142-B-143 (describing the Viable Population committee recommendations "that a deer density of at least five deer/mi^2 be maintained in areas where deer are their primary prey (Suring et al. 1993)."). Whatever those recommendations provided, the Forest Service did not adopt the lower deer density metric into TLMP's wolf standards and guidelines and they do not describe either contemporary biological conditions or the consequences for meeting the obligation to provide a sustainable and viable wolf population in the province and on Prince of Wales Island as a whole.

deer density in this project area or in the biogeographic province based on biological considerations as TLMP requires and, as a result, the Forest Service's approval of the Big Thorne Project violates TLMP's wolf standards and guidelines.

In sum, the Forest Service's approval of the Big Thorne Project means that both the project area and the biogeographical province will fall even farther below the wolf standards and guidelines regarding deer habitat density, which TLMP established to insure sustainable wolf populations capable of meeting human harvest demand, *see* TLMP at 4-95 (XIV.A.2), as well as viable and well-distributed populations of wolves, s*ee* TLMP at 4-89 (WILD1.II.B.), 3-62 (WILD1.A). This is unlawful.

2. The Big Thorne Project does not meet TLMP's road densities standards and guidelines for wolves.

TLMP also states that a road density of 0.7 to 1.0 mile per square mile or less may be necessary to reduce harvest-related mortality risk where locally unsustainable wolf mortality has been identified. It provides that certain requirements are triggered in areas with "locally unsustainable wolf mortality" that is caused by humans. TLMP at 4-95 (XIV.A.1.c). More specifically, it establishes that:

> In these landscapes, both open and total road density should be considered. Total road densities of 0.7 to 1.0 mile per square mile or less may be necessary.

TLMP at 4-95 (XIV.A.1.c). The Forest Service explained in the TLMP FEIS that "[t]his metric [of 0.7 to 1.0 mile per square mile or less] is appropriately applied at the project level to areas that are the approximate size of an average wolf pack territory (about 74,000 acres; Person et al. 1996)." TLMP FEIS at 3-285.

The Forest Service acknowledges in the FEIS that "wolf mortality concerns have already been identified on Prince of Wales Island." FEIS at 3-190; *see also* FEIS at 3-186 ("this is an area where wolf mortality concerns have been identified"); FEIS at 3-116 (FEIS explaining that the Big Thorne "project area WAAs may be at risk of such overharvest (both unsustainable and pack depletion)"). Additionally, the USFWS told the Forest Service during the comment process that it "is concerned that wolf mortality has been excessive across the [Big Thorne] project area and other areas of Prince of Wales Island." PR 736_2241 (USFWS Comment Letter, 3) (citing Person and Logan (2012)); *see also* FEIS at B-143 (FEIS explaining that the State of Alaska believes "there may be vulnerabilities for wolves in the project area").

Yet, the Forest Service acknowledges in the FEIS that road density is predicted to increase across the Big Thorne Project area and will exceed TLMP's standard of 0.7 to 1.0 mile per square mile or less. *See, e.g.*, FEIS at 3-178-79; FEIS at 3-185 ("Total road densities on NFS lands under 1,200 feet elevation would range from 0.8 to 2.6 miles per square mile, depending on the WAA,

under Alternative 3 (Table WLD-25)."). In fact, the FEIS acknowledges that WAAs 1315, 1319, and 1420 already exceed 1.5 mile per square mile. FEIS at 3-179.[10] The FEIS analysis concludes with the acknowledgement that "Alternative 3 would . . . increase human access in the project area, . . . more so than the other alternatives" and that "this is an area where wolf mortality concerns have been identified." FEIS at 3-186.

TLMP establishes certain road densities that apply in areas where human-caused mortality is determined to be a "significant contributing factor to locally unsustainable wolf mortality." TLMP at 4-95 (XIV.A.1.c). Like the deer habitat capability metric, TLMP allows for adjustments to the established densities based on local knowledge and biological considerations. *See id.* The Forest Service, however, did not defend its Big Thorne decision based on these considerations.

The Forest Service explains in the FEIS that the "[s]tandards and guidelines that . . . limit road densities . . . would have a high likelihood of maintaining viable and well-distributed populations of wolves." FEIS at B-35. In an effort to "ensure locally viable wolf populations," TLMP identifies both plan and project level mechanisms. TLMP at 4-95 (XIV.A.1.c). At the plan level, the Forest Service can work with the State of Alaska and USFWS to "incorporate this information into Travel Management planning and hunting/trapping regulatory planning." *Id*.

In addition, the TLMP FEIS clarifies that the road density standard applies "at the project level . . . ." TLMP FEIS at 3-285. At the project level, the Forest Service is directed to "reduce mortality risk and [consider] a range of options," including, for example, "establishing road closures." TLMP at 4-95 (XIV.A.1.c). Indeed, the Forest Service made project level determinations to close certain roads in response to wolf mortality concerns. ROD at 5-6.

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[10] The FEIS implies that a road density threshold of 1.5 mi/mi^2 (0.9 kilometers per square kilometer (km/km2)) might be an appropriate road density for wolves because increasing road densities beyond this level would not result in increases in wolf mortality. *See, e.g.*, FEIS at 3-178, 3-179. The Forest Service relies on research by Person and Russell (2008), but as the USFWS explained it its comments, that research revealed that a "road density [of 1.5 mi/mi^2] was associated with highly variable harvest rates, wolf population declines, and probable local extirpations (Person and Russell 2008, 1547)." PR 736_2241 (USFWS Comment Letter at 4); *see also* Person and Russell 2008, which is attached as an exhibit Person Statement (explaining that "total mortality could greatly exceed 38% of the autumn wolf population and be unsustainable at that density of roads"). The USFWS explained that "Person and Russell (2008) found that even [TLMP's] more protective guideline of 0.7 miles of open roads per square mile (0.43 km per square km) entailed 'considerable risk of facilitating chronic unsustainable mortality.'" *Id*. (quoting Person and Russell 2008, 1547). The Forest Service cannot depart from TLMP's substantive and analytical requirements, *see* TLMP at 4-95, but even if it could the FEIS fails to disclose any of this contrary scientific information, which is itself unlawful.

More directly, of course, the Forest Service can stop creating new roads in an area that already fails to meet the requirement. TLMP's road density standard applies to "both open and total road density." TLMP at 4-95 (XIV.A.1.c). As the FEIS explains:

> The [Prince of Wales Access Travel Management] project considered the access management objectives for the existing NFS roads for the entire Prince of Wales Island. The Big Thorne Project considers the road management recommendations for the existing [National Forest System] roads and any proposed [National Forest System] roads needed to access timber for the Big Thorne project area, as described in Chapter 3. The Big Thorne Project also analyzes the temporary roads needed for timber access.

FEIS at 1-20 (emphasis added). TLMP's road density standard recognizes that just closing roads might not be enough to protect wolves. The only way for the Forest Service to address "total" road densities is by affecting construction of new roads and that is generally a project level determination. Thus, the road density standard applies both at the planning level and the project level.

In sum, TLMP's wolf "[s]tandards and guidelines . . . limit road densities." FEIS at B-35 (emphasis added). They do so because it is one of the key ways the Forest Service can ensure that the Tongass retains "a high likelihood of maintaining viable and well-distributed populations of wolves." *Id*. Here, the Big Thorne Project does not comply with those standards and, as a result, is unlawful.

In sum, the Forest Service acknowledges its approval of the Big Thorne Project will further prevent both the project area and biogeographical province from meeting TLMP's deer habitat capability standard. Additionally, the Forest Service admits that because of its approval road density will increase across the Big Thorne Project area, with resulting densities that exceed TLMP's requirements. The Forest Service's approval of Big Thorne Project despite these deficiencies violates NFMA and TLMP.

D. If Big Thorne Meets the Requirements of TLMP, Then TLMP Violates NFMA's Requirements to Ensure a Viable, Well-Distributed Population of Wolves in the Tongass.

As result of the Big Thorne Project, in conjunction with the other logging in the area, the Forest Service has not ensured a viable, well-distributed population of wolves on Prince of Wales Island. *See supra* Section III.A.1. Indeed, the wolves on Prince of Wales Island are "facing the possibility of extinction." Person Statement at ¶31. If the Big Thorne Project meets the requirements of TLMP, then TLMP does not comply with NFMA and the requirements of 36 C.F.R. § 219.19 to insure a viable well distributed population of wolves in the Tongass.

According to the Forest Service: "Population viability is addressed at the Forest Plan level to comply with NFMA. The viability of the wolf population has been addressed in the 2008 Forest Plan Amendment FEIS, Volume 1 (p. 3-284 and 3-285) and in the decision for the Amendment (p. 20)." FEIS at B-56. Regarding population abundance, the TLPM FEIS states: ". . . another important purpose of the Tongass Forest Plan is to manage wildlife resources in such a way that, in addition to ensuring that viable populations are sustained, consumptive (hunting) and non-consumptive (wildlife viewing) opportunities are maintained." TLMP FEIS at 3-253.

As Dr. Person explains in his statement, the Big Thorne Project, when combined with 60 years of clearcut logging, "could result in the ecological collapse of the predator-prey system and result in wolf numbers well below minimum viability both demographically and genetically, which would eventually result in their extirpation or extinction within the Prince of Wales Archipelago." Person Statement at ¶13.d. Far from ensuring viability, TLMP has resulted in decisions like the Big Thorne Project, which "put[] the viability of the wolf population on the Prince of Wales and the surrounding islands (the Prince of Wales Archipelago) in doubt." *Id.* at ¶13.b. Simply put:

> Prince of Wales Island, including the Big Thorne project area, is at a tipping point with regard to a viable predator-prey dynamic between wolves and deer. The wolf populations on Prince Wales have been declining precipitously, and wolves are already facing the possibility of extinction on Prince of Wales Island. Big Thorne logging, if it goes forward, will remove the most important remaining deer winter habitat in many of the affected watersheds, which will further reduce the abundance of deer in the project area (especially following severe winters), perhaps for decades to come. As a result, the predator-prey relationship between wolves and deer on Prince of Wales is likely to collapse.

Id. at ¶31. As Dr. Person explains the Big Thorne Project results in a substantial risk to wolves and could even result in their extirpation from Prince of Wales Island and the Prince of Wales Archipelago. *See supra* Section III.B. TLMP does not allow the Forest Service to take such a risk. TLMP imposes a stringent obligation on the Forest Service to ensure a viable, well distributed population of wolves is maintained in the Tongass. *See Idaho Sporting Congress*, 305 F.3d at 961.

In sum, as the Big Thorne Project demonstrates, TLMP is resulting in management decisions that do not provide for "the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area." 36 C.F.R. § 219.19. As a result, TLMP does not comply with NFMA and its implementing regulation.

E. The Forest Service Fails to Respond Adequately to Concerns Regarding the Decision to Log Most of the Last Remaining Areas of Important Deer Habitat in the Big Thorne Project Area.

For the reasons explained above, one of the critical areas of concerns regarding the Big Thorne Project is the degree to which it eliminates significant portions of last remaining old growth winter habitat for deer. During the comment process on the DEIS, USFWS and the State of Alaska Department of Natural Resources (the State) expressed concern that the Forest Service needed to minimize threats to deer habitat given deer habitat capability is already well below the TLMP standards and guidelines across both the project area and the biogeographical province. They identified specific units and types of habitat that should be excluded from the action alternatives to prevent further declines in deer habitat. The Forest Service, however, failed to respond adequately to those concerns and in some cases actually increased harvest in those areas without explanation.

The USFWS and the State identified specific units and types of habitat that the Forest Service should have be excluded or modified in the Big Thorne Project to minimize impacts to deer and their habit. *See supra* Section III.A.3. Despite the wildlife agencies' concerns, however, the Forest Service did not exclude these units from the ROD, and did not confront these concerns in a meaningful way in the FEIS.

Table 2, attached hereto as Exhibit 12, identifies the units of biological concern that USFWS and the State specifically identified and describes the ROD's treatment, as well as the changes, if any, between the DEIS and FEIS. Additionally, Table 3, attached hereto as Exhibit 13, identifies additional units included in the Big Thorne Project that contain areas with these habitat characteristics (e.g., deep snow winter habitat, etc.) and describes the ROD's treatment of those units. As the tables demonstrate, not only did the Forest Service include the overwhelming majority of the units in the Big Thorne Project, it actually increased logging and/or road construction in many instances.

The FEIS's response to these expert concerns fails to address the concerns of the expert agencies. *See, e.g.,* FEIS at B-143 (responding only to the State's concerns). First, the Forest Service explains that "both currently and with the selection of any alternative, including the no action alternative, would result in deer habitat capabilities below 18 deer per square mile." *Id*. at B-142. Second, the Forest Service contends, despite TLMP's standards and guidelines, deer habitat capabilities could drop below 18 deer per square mile and still support a viable wolf population. *See* FEIS at B-142 – B-143. These responses do not address the concerns that the Big Thorne Project logs critical deer habitat.

Neither of these points addresses the concerns raised by USFWS and the State of Alaska regarding the need to minimize the impacts to deer by avoiding the harvest of stands that provide important winter habitat and elevational corridors. The Forest Service acknowledges that the alternatives will have differential impacts on deer habitat and, as a result on wolves.

Yet, the Forest Service never explained why it refused to exclude these important areas from the sale area.

The USFWS and the State of Alaska raised concerns and presented the Forest Service opposing views and scientific opinions regarding the importance of that habitat and the need to exclude it from the Big Thorne sale. The Forest Service failed to respond to or disclose these concerns adequately as required by NEPA, which is intended to ensure that the agency carefully considered the environmental effects of its decisions. *See, e.g., Earth Island Institute v. U.S. Forest Serv.*, 442 F.3d 1147, 1172 (9th Cir. 2006), cert. denied 127 S. Ct. 1829 (2007); *Ctr. for Biological Diversity v. Forest Serv.*, 349 F.3d 1157, 1167-69 (9th Cir. 2003); *Seattle Audubon Soc'y v. Espy*, 998 F.2d 699, 704 (9th Cir. 1993).

In light NFMA's obligation, the Forest Service's failure to respond meaningfully to the scientific controversy raised about important deer winter range violates the Administrative Procedure Act. Likewise, the Forest Service's failure to reveal adequately the opposing scientific opinion in the FEIS violates NEPA. Appellants ask that the Forest Service to consider and respond to these criticisms and revise its decision accordingly.

F. The FEIS Misleads the Public as to the Precipitous Declines in the Number of Wolves in the Big Thorne Project Area and Prince of Wales Island and the Consequences of the Big Thorne Project on the Wolves' Viability in the Tongass.

Maintaining a viable wolf-deer-human hunting relationship on Prince of Wales Island and the project area is one of the principle concerns regarding the Big Thorne Project. More so than any other part of the Tongass, north central Prince of Wales has incurred the devastating effects of unsustainable old growth logging. Yet, the FEIS does not confront the reality of the situation for wolves in the Big Thorne area and Prince of Wales Island and the consequences for the wolves throughout the Tongass. As explained above, "the predator-prey relationship between wolves and deer on Prince of Wales is likely to collapse" as a result of the Big Thorne Project. Person Statement at ¶31. The FEIS failed to provide the decision-maker and the public an honest and complete understanding of these effects, which is unlawful.

According to the Forest Service, the Big Thorne Project "may result in local declines in the deer population due to reduced habitat capability which could affect wolves, and thus hunters and trappers." FEIS at 3-186 (emphasis added). The Forest Service, however, qualifies even this tepid statement, suggesting that commercial thinning projects and the presence of WAAs with higher habitat capability and large, undisturbed blocks of habitat on Prince of Wales Island adjacent to the project area (e.g., the Honker Divide large OGR and Karta Wilderness) could help mitigate the effects. *Id.* As explained below, the FEIS grossly understates the effects to the wolves and the consequences for the overall predator-prey relationship on Prince of Wales Island.

The Forest Service's planning record is replete with concerns regarding the future viability of the predator-prey relationship between wolves and deer on Prince of Wales Island. *See, e.g.,* AR 736_2241A (Ex. 12, Doc. 55 at .pdf 1) ("The Big Thorne timber sale likely will have consequences for the future viability of the watersheds involved to sustain wolves and deer. It also will contribute to the long-term loss of deer hunting opportunities."); *id.* (Ex. 12, Doc. 55 at .pdf 1) ("In particular, the Thorne River and Steelhead Creek watersheds that I highlight in the maps will be severely affected by the sale. There are simply no methods of mitigation that will compensate for that much loss of winter habitat."); *Id*. (Ex. 12, Doc. 55 at .pdf 1) ("Cumulative loss of productive forest habitat in those areas causes me to question the viability of those watersheds to maintain ecological functions and support a healthy predator-prey community. Wolf viability depends not only on reducing road density and risk of unsustainable harvest but also on abundant populations of deer. I doubt that a resilient and persistent wolf-bear-deer-human predator-prey system will be possible within the watersheds affected after the project is completed, if indeed it is still possible as current conditions progress inexorably toward stem exclusion.").

The Person Statement further bolsters these conclusions. *See supra* Section III.A.1. The Big Thorne Project, when combined with the decades of prior logging, could result "in the ecological collapse of the predator-prey system and result in wolf numbers well below minimum viability both demographically and genetically, which would eventually result in their extirpation or extinction within the Prince of Wales Archipelago." Person Statement at ¶13.d.

Here, the FEIS severely misleads the public as to the current state of wolves in the Big Thorne Project area and Prince of Wales Island and the consequences of the Big Thorne Project on those wolves. The Forest Service acknowledges there might be declines or depletion in the number of wolves in the Big Thorne Project area, but the FEIS does not confront the harsh reality of what its approval really means for the area and Prince of Wales as whole. As such, the FEIS violates NEPA.

IV. THE FEIS FAILS TO DISCLOSE THE STATUS OF AND RISKS TO GOSHAWKS IN THE PROJECT AREA, IN VIOLATION OF NEPA.

Neither the FEIS, nor the accompanying Biological Assessment/Biological Evaluation (BA/BE) acknowledges the precarious circumstances of goshawks on Prince of Wales Island. Both documents recognize that Prince of Wales Island is "relatively prey-poor," that goshawks there "have been documented moving great distances to forage," and that "there is a low abundance of goshawks on [Prince of Wales Island]." 736_0418 at 25, 38 (TNF 2013); FEIS at 3-133, 3-230. But they fail to disclose the severity of the situation, and the true magnitude of the risk posed to goshawks by continued old-growth logging on Prince of Wales Island. As explained below, the viability of the entire Southeast Alaska goshawk population is already at risk. On Prince of Wales Island, owing to extremely low prey abundance, disproportionate habitat destruction, huge territories, and low nest productivity, goshawks are in even greater trouble. By not

disclosing these risks, the Forest Service's environmental documentation omits a factor essential to informed commenting and decision-making, thereby violating NEPA.

A. NEPA Requires Disclosure of Serious Risks to the Viability of the Prince of Wales Island Goshawk Population.

NEPA requires agencies to acknowledge and discuss the risks posed by proposed actions. *See Friends of the Earth v. Hall*, 693 F. Supp. 904, 937 (W.D. Wash. 1988) ("An agency must candidly disclose in its EIS the risks posed by its proposed action. Otherwise the EIS cannot serve its purpose of informing the decisionmaker and the public *before* the decision to proceed is made." (emphasis in original). Importantly, agencies must not only identify the risks, but also attempt to quantify them and make plain their significance. *See, e.g., Seattle Audubon Soc. v. Moseley*, 798 F. Supp. 1473, 1483 (W.D. Wash. 1992) ("The FEIS has thus mentioned what appears to be a major consequence of the plan—jeopardy to other species that live in the old growth forests—without explaining the magnitude of the risk or attempting to justify a potential abandonment of conservation duties imposed by law. An EIS devoid of this information does not meet the requirements of NEPA."); *see also Seattle Audubon Soc. v. Lyons*, 871 F. Supp. 1291, 1318 (W.D. Wash. 1994) ("An EIS must, however, candidly disclose the risks and any scientific uncertainty").

B. A Multitude of Factors Threatens the Population Viability of Goshawks Throughout Southeast Alaska.

Goshawks in Southeast Alaska are at risk from both natural and anthropogenic factors, described below, that have resulted in extremely large territories and low numbers.

1. Goshawks in Southeast Alaska are closely associated with higher volume old growth forest stands.

Goshawks are associated with, and well-adapted to, specific forest environments, and the prey that inhabit them. They "have broad, short wings and a long tail, which enable rapid acceleration and agile maneuverability . . . ." PR 736_0341 at 35 (USFWS (2007)). They "hunt by alternating short flights with a period of watching from a perch. Once prey is spotted, an attack is launched from the perch (Squires and Reynolds 1997). This method of hunting relies on cover to conceal the predator's approach, perches from which to observe and attack, adequate visibility for spotting prey, and adequate space between trees to allow for flying between perches and attacking prey (Reynolds et al. 1992)." *Id.* at 64. Canopy cover also protects goshawks and their nestlings from avian predators such as great horned and barred owls, red-tailed hawks, and bald eagles. *Id.* at 67, 107-08.

Importantly, in Southeast Alaska, goshawks are associated with a very particular forest type: very highly to moderately productive old-growth (250 years old or older). *See* PR 736_0271 at 43 (Iverson et al. (1996)) (finding "a combined 58 percent of all habitat use occurring in these

cover types").[11] Nests are "typically located in tall trees, within high-volume forest stands with relatively high canopy cover." Exhibit 14 at 8 (The Shipley Group, Soule River Survey (2009). They spend significantly less time in low productivity forest (about 10 percent), and actively avoid clearcuts, nonforested areas, and, contrary to assertions in the FEIS, also "mature sawtimber" (75- to 150-year old stands). PR 736_0271 at 43 (Iverson et al. (1996)).

2. Goshawks have perilously large territories in the region.

In Southeast Alaska, a combination of factors, including low prey abundance, natural fragmentation (by ice fields, muskeg bogs, steep terrain, and scattered islands), and past "highgrading" (disproportionately cutting down higher volume forest stands) has forced goshawks into larger foraging territories than anywhere else in North America. Breeding-season home ranges average 4,500 hectares (11,111 acres) for females, and 5,900 hectares (14,573 acres) for males. Exhibit 16 at 30-31 (Flatten et al. (2001)). One male breeding season use area was radio-tracked at more than 19,000 hectares (47,000 acres). *Id.* By contrast, in the rest of North America, breeding-season ranges average between 570 and 3,500 hectares. PR 736_0341 at 34 (USFWS (2007)). Year-round use areas in Southeast Alaska are vast, averaging more than 15,000 hectares (up to 67,000 hectares) for males, and more than 50,000 hectares (up to 180,000 hectares) for females. Exhibit 16 at 30-31 (Flatten et. al (2001)); *see also* PR 736_0271 at 31-32 (Iverson et al. (1996)) (recording multiple males and females using areas larger than 400,000 ac (162,000 ha)).

As USFWS has noted, the energy expenditure associated with having to seek prey over such enormous areas poses a serious threat to goshawks in Southeast Alaska:

> Physiologically, foraging is a trade-off between the energy expended to acquire food and energy derived from its acquisition. The energetic demands of foraging increase with distance traveled. The thresholds for individual survival and for supplying food to nestlings and a brooding mate in this energy balance are unknown, but habitat alteration that decreases foraging efficiency will push individuals and broods toward that threshold.

PR 736_0341 at 66 (USFWS (2007)).

As foraging ranges increase during the breeding season, the likelihood of reproductive success is adversely affected. "Longer travel distances during foraging increase ... the probability that adults may abandon nests". *Id.* A Forest Service report concluded more than 15 years ago that

[11] These authors define "moderate productivity" as forest capable of producing 25.1 million board feet (mmbf)/acre, "high productivity" as producing 31.4 mmbf/acre, and "very high productivity" as capable of producing 39 mmbf/acre. PR 736_0271 at 34 (Iverson et al. (1996)).

"The very large areas used by goshawks in southeast Alaska may lead to high energy expenditure during daily movements. . . . [P]opulations of individuals requiring large ranges may be energetically stressed, have lower reproductive rates, and be less resilient to further stress . . . ." PR 736_0271 at 65 (Iverson et al. (1996)). Outside of the breeding season, range expansion is associated with increased risk of death. "Mortality of both male and female adult goshawks in Southeast Alaska was highest in late winter, when food availability is lowest" (and ranges were at their largest). PR 736_0341 at 41 (USFWS (2007)); *see also id.* at 55 ("Most adult mortality in Southeast Alaska and on Vancouver Island occurs in late winter (Titus et al. 2002, McClaren 2003), when prey densities are lowest and snow or other factors may limit prey availability. Dead birds recovered were emaciated or in areas with limited prey, and food stress or starvation was suspected (Titus et al. 2002, McClaren 2003)").

3. Tongass Goshawks are a small, isolated, and declining population.

A second major threat to goshawks in Southeast Alaska, partially related to the phenomena discussed above, is the fact that they comprise a small, genetically potentially isolated, and almost certainly declining population. As USFWS has noted, Queen Charlotte goshawks exist in an inherently precarious status, highly vulnerable to any further stresses. "Given the small populations, low survival or reproductive rates could not be sustained long before viability of the subspecies would be at risk." PR 736_0341 at 8-9 (USFWS (2007)).

USFWS has estimated that there are only approximately 300 to 400 pairs of goshawks remaining in the region (about the same number as in British Columbia, which USFWS determined to be a distinct population segment and threatened within the meaning of the Endangered Species Act. *See* 77 Fed. Reg. 45870, 45887 (Aug. 1, 2012)); 72 Fed. Reg. 63123, 63,128 (Nov. 8, 2007). USFWS has also determined that the Southeast Alaska population is largely isolated, because it appears to be cut off from both the Queen Charlotte Islands to the south (by open ocean), and the British Columbia mainland to the east (by the Coast Range mountains). *See* 72 Fed. Reg. at 63,129. And the agency has concluded that Tongass birds may be genetically diverse from Canadian specimens as well. *Id.* at 63,129.

In point of fact, the USFWS figure likely overstates the number of reproductive pairs in Southeast Alaska, putting local birds in an even worse position than USFWS reports. USFWS based its population estimate on studies done by Schempf and Woods (2000). 72 Fed. Reg. at 63,127-28; *see also* Exhibit 15 (Schempf and Woods (2000)); Exhibit 16 (Flatten et al. (2001)). Schempf and Woods estimated that the Tongass National Forest contained between 580 and 747 nesting territories. 72 Fed. Reg. at 63,127. Flatten et al. used broadcast and telemetry surveys to determine that, on average, approximately 45 percent of nesting territories are occupied in any given year. 72 Fed. Reg. at 63,127-28. Applying Flatten et al.'s territory occupancy rate to Schempf and Woods' total territories, the USFWS estimated that, as of 2000, there were approximately 261 to 336 breeding pairs in the Tongass National Forest. 72 Fed. Reg. at 63,127-28. Though it did not explain its methodology, the USFWS then extrapolated this range to estimate that approximately 300 to 400 pairs of goshawks occupied Southeast Alaska. *Id.*

However, much of the area Schempf and Woods categorized as goshawk habitat, very likely would not support breeding birds. They considered hypothetical territories with as little as 20 percent of the land area in old-growth forest as "suitable." Exhibit 15 at 6 (Schempf and Woods (2000)) (explaining that "[c]ells with less than 20 percent of the land area in old growth forest were excluded," but cells with more than that were counted). In contrast, both Iverson et al. (1996) and Doyle (2005) concluded that, to be suitable, at least half of a territory probably needs to be covered in old growth forest. *See* PR 736_0271 at 37 (Iverson et al. (1996)); Exhibit 17 at 33 (Doyle (2005)) ("[T]here appears to be a requirement for >41% and more typically >60% of the area to be in mature-old growth forest, before goshawk breeding is detected in a landscape").[12] The Forest Service appears to accept these conclusions in principle. *See* FEIS at 3-133.

Thus, applying a more realistic habitat parameter would necessarily have led Schempf and Woods to a much lower estimate of the theoretical maximum number of suitable territories, and the USFWS to a much lower estimate of actual breeding pairs. A lower number would also be more consistent with a recent USFWS estimate for breeding pairs in Canada. In discussing its decision to list Queen Charlotte goshawks in British Columbia as threatened, USFWS estimated that, as of 2008, there were about 352 to 374 pairs of goshawks throughout the British Columbia (B.C.) distinct population segment (DPS). 77 Fed. Reg. at 45,887. However, the B.C. DPS inhabits twice as much productive old-growth forest (5.7 million ha) as the Southeast Alaska DPS (2.2 million ha). *See* Exhibit 18 at 7 Table A-9 (USFWS, Updated Appendices to Status Review (2010)). It is not biologically plausible that half as much suitable habitat, in Southeast Alaska, would support as many pairs of the same subspecies as are found in neighboring and ecologically similar B.C. A substantially lower reproductive population would also be more consistent with Crocker-Bedford's 1994 estimate that there were at the time 100-200 breeding pairs of goshawks in all of Southeast Alaska. Exhibit 19 at 5 (Crocker-Bedford (1994)).

Further, due to continued logging of old growth, the Southeast Alaska population is highly probably getting smaller. The Tongass National Forest reported having logged 6,996 acres between 2007 and 2012. *See* PR 736_2265 at 8 (USFWS (2013)). And in addition to federal logging, habitat liquidation on other holdings has been considerable. *See, e.g.*, PR 736_0341 at 81 (USFWS (2007)) ("Intensive clearcutting on large areas of corporation land [in Southeast 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 goshawk population"). Compounding this problem, even if all old growth logging in all of Southeast Alaska stopped today, the goshawk population would probably still continue to decline. As USFWS has explained, "goshawk populations may continue to decline for several years after timber harvest of old growth forests has ceased and timber harvest is restricted to second-growth stands because it is likely to take several generations for the populations to equilibrate with their modified environments." 72 Fed. Reg. at 63,136.

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[12] Doyle defined "mature" forest as 81-250 years old, and "old" forest as more than 250 years old. Exhibit 17 at 7 (Doyle (2005)).

C. Goshawks on Prince of Wales Island Are More Vulnerable Than Elsewhere in the Tongass, Because of Natural Lack of Prey, Intensive Logging, Huge Territories, and Low Productivity.

1. Prince of Wales Island lacks important prey species.

For a number of reasons, goshawks on Prince of Wales Island are more stressed, more sensitive, and more vulnerable to continued cutting of old-growth forest than goshawks anywhere else in Southeast Alaska. Even without logging impacts, Prince of Wales Island and surrounding islands naturally lack important prey species. Red squirrels, which are significant prey for goshawks elsewhere in Southeast Alaska, are absent. PR 736_0271 at 59 (Iverson (1996)); FEIS at 3-133. There is a species of flying squirrel in the area, but it is nocturnal, and essentially unavailable to goshawks (particularly during critical winter months). PR 736_0341 at 39 (USFWS (2007)). Moreover, the long-term viability of flying squirrels themselves is in doubt on Prince of Wales Island, because small habitat reserves are too small to sustain their populations in the absence of immigration, and the species' ability to disperse adequately across intervening spaces, whether naturally unforested or logged, is in doubt. *See* PR 736_2241a at 631-33 (Smith and Person (2007)); *see also* PR 736_0252 at 87 (Flaherty et al (2010)) ("Our results suggest low availability of potentially critical food items in managed habitats, which may constrain dispersal of [flying squirrels on Prince of Wales Island]"). Mammalian prey is so scarce on Prince of Wales Island and surrounding islands that one study documented "99 percent of the biomass delivered [to nests] was avian, as compared to northern Southeast Alaska, where mammals accounted for 26 percent of prey biomass." *Id.* at 39. This becomes a particularly serious problem in the winter, when "many avian prey species migrate from the region, [further] reducing the variety and abundance of prey available." *Id.* at 6.

Prince of Wales Island and the surrounding islands also lack sooty (blue) grouse, another key food source for goshawks elsewhere in Southeast Alaska. PR 736_0271 at 59 (Iverson et al. (1996)); PR 736_0341 at 39 (FWS (2007)). Although spruce grouse inhabit the area, they are only about half the size of sooty grouse. PR 736_0341 at 39 (FWS (2007)). Further, logging has reduced the availability of spruce grouse to goshawks, because spruce grouse avoid clearcuts, instead inhabiting 15- to 35-year-old second growth, *id.* at 63, where goshawks are at a distinct disadvantage because of the density of the tree stems, which "interfere with flight lines and decrease hunting success." *Id.* at 36. As a result, "[r]esearchers have identified food stress as a limitation for goshawks on Prince of Wales Island and surrounding islands in southern Southeast Alaska . . . ." 72 Fed. Reg. at 63136. For example, "[m]ost females that died [of starvation] during Flatten et al.'s (2002) study were from the Prince of Wales area, which lacks red squirrels, hares and sooty grouse to support goshawks during winter (Titus et al. 2002)." PR 736_0341 at 41 (USFWS (2007)).

2. Aggressive Logging has disproportionately impacted Prince of Wales Island.

Goshawks are also particularly at risk on Prince of Wales Island, because its forests have been disproportionately targeted by the timber industry:

> Timber harvest has not been evenly distributed across the Tongass NF. There are 21 biogeographic provinces within the Tongass NF (USDA Forest Service 1996a), and several have had little or no harvest (e.g., Admiralty Island and the mainland provinces). Other provinces have had substantial timber harvest activity (e.g., northeast Chichagof and Prince of Wales Islands).

PR 736_0271 at 7 (Iverson et al. (1996)); *see also* TLMP FEIS at 3-201 (indicating that North Central Prince of Wales Island has been logged far more heavily than any other Biogeographic Province); 72 Fed. Reg. at 63131 ("Corporate lands, which cover only 3 percent of the total area of Southeast Alaska but include 7 percent of the region's 6.4 million ac (2.6 million ha) of productive forest, are distributed throughout Southeast Alaska, with concentrations on and near Prince of Wales Island . . .").

Already by 1995, more than 20 percent of the old growth forest of northern Prince of Wales Island had been harvested by 1995. PR 736_0271 at 74, Table 26 (Iverson et al. (1996)). This percentage was almost twice as high as the next most-harvested biogeographic provinces. *Id.* For context, Iverson et al. (1996) concluded that "[h]arvest rates exceeding 13 percent [by 1995] . . . represent[ed] increased risk to long-term goshawk persistence." *Id.*

Subsequent logging on both federal and non-federal lands has substantially worsened the situation. In 2012, the USFWS reported that:

> Threats to the Queen Charlotte goshawk in Southeast Alaska are greatest on Prince of Wales Island and the surrounding smaller islands at the southern end of the DPS. Timber harvest on both the Tongass National Forest and native corporation lands has been intensive in some parts of this area. Approximately 26 percent of the productive forest on Prince of Wales and the surrounding islands has been harvested, including some of the most productive forest lands in Southeast Alaska (Albert and Schoen 2006, pp. 15-18).

72 Fed. Reg. at 63,136.

3. Goshawks maintain larger territories and experience lower productivity on Prince of Wales Island than anywhere else in Southeast Alaska.

The loss of habitat and lower prey abundance on Prince of Wales Island (and nearby islands) have had a serious adverse impact on territory size and nesting productivity. USFWS reports that goshawks on Prince of Wales Island experience "comparatively low goshawk nesting densities and lower reproductive success than elsewhere in the DPS." 72 Fed. Reg. at 63,136-37. Similarly, Iverson et al. (1996) noted that goshawk territories on Prince of Wales Island are larger than elsewhere in Southeast Alaska. PR 736_0271 at 68 (Iverson et al. ((1996)). Indeed, the very large individual home ranges mentioned above are from Prince of Wales Island.

Loss of habitat, in particular, affects goshawk densities (i.e., territory sizes) and reproductive success through several mechanisms:

> Several factors may contribute to decreased productivity and density in goshawk populations following particular changes in forest structure and composition: (1) increased predation on adults and young goshawks as hiding cover is reduced and potential predator populations increase (e.g., great horned owls); (2) loss of cool thermal conditions at nest sites; (3) reduced prey abundance or availability, or both; (4) increased competition as predators that adapt to more open forest become abundant; and (5) increased disturbance and human-caused mortality due to increased access from the timber harvest road network.

Id. at 21.

D. <u>The FEIS Does Not Disclose the Precarious State of and Serious Risks to the Viability of the Prince of Wales Island Goshawks Population.</u>

The FEIS wholly fails to disclose these serious risks to goshawks in the project vicinity, either the pre-existing risks or the way in which the selected alternative would aggravate them, in any fashion that would alert the public or decisionmakers to them. It blandly asserts that goshawks "consume a wide variety of prey species and are capable of alternating between prey species." FEIS at 3-133. It acknowledges that Prince of Wales Island is "a relatively prey-poor area compared to the rest of Southeast Alaska," but attributes that only to the absence of two prey species. *Id.* Rather than (i) identifying the severe prey stress the birds are under on the island, (ii) discussing how logging contributes to that risk, or (iii) acknowledging that lack of prey leads to dangerously large home ranges, the FEIS instead hurries on to say "Goshawks on Prince of Wales Island have been documented moving great distances to forage," *id.*, mistakenly implying that they have the ability to offset prey scarcity by foraging widely, without adverse impact. Similarly, in its effects analysis, the FEIS says simply that Alternative 3, on which the selected alternative is based, may cause goshawks to "increase their breeding home range size."

Id. at 3-230. Nothing in the FEIS discloses that in fact the wide foraging is itself a risk factor, and one that distinguishes Prince of Wales Island goshawks as particularly imperiled, even compared to their rare conspecifics elsewhere in the Tongass.

Nor does the FEIS at any point acknowledge that additional logging in the project area could produce gaps in goshawk distribution as a result of nest abandonment or outright mortality. Astonishingly, it asserts that "none of the alternatives would directly impact known actively nesting birds," *id*. at 3-230, as though failure to find birds where they used to exist counted in the project's favor. It concedes that logging could result in portions of the landscape becoming unsuitable for goshawks, but asserts that, anyway, "there is a low abundance of goshawks on [Prince of Wales Island] *due to the lack of prey*." *Id.* (emphasis supplied). Similarly, it allows that "harvest *may* also decrease foraging habitat quality" and obliquely says that "availability of adequate prey resources has been linked to goshawk territory occupancy and breeding success." *Id.* at 3-133 (emphasis supplied). It also says, in an impressive understatement, that Alternative 3 "could result in a reduction in the density of goshawks in the project area VCUs." *Id.* at 3-237.

In point of fact, the proposed logging will, definitely, degrade goshawk foraging habitat. All known previously active nests in areas of Prince of Wales Island that were heavily logged have apparently been abandoned, *id.* at 3-135. And further reductions in habitat could plausibly extirpate goshawks from portions of their existing range.

Moreover, goshawks from Prince of Wales Island and surrounding islands may provide distinct genetic representation that plays a role in the fitness of the entire Southeast Alaska population. *See* 72 Fed. Reg. at 63,137 (citing Titus et al. (1994) at 10-12). Nowhere, though, does the FEIS disclose what USFWS concluded, that these birds constitute a significant portion of the Alaska population and that "loss of the goshawk population on Prince of Wales and the surrounding smaller islands would ... compromise conservation of the subspecies in the Southeast Alaska DPS." *Id.*

Instead, the FEIS repeatedly and misleadingly points to TLMP standards and guidelines, and the existence of second growth in the project area, as reliably mitigating logging impacts to goshawks. It calls the "legacy forest structure" standard a conservation measure for goshawk, *see* FEIS at 3-133, and argues that it would "maintain some habitat value for goshawks," *id.* at 3-230, but cites only a 1994 study discussing goshawk perching trees in mesic forests of northern California. In short, the FEIS adduces no evidence that the standard preserves habitat for Queen Charlotte goshawks.

Similarly misleadingly, the FEIS counts as suitable goshawk habitat "mature young growth," defined as "stands 50 years or older," and measures whether the landscape will support goshawks by whether 50 percent of it is covered by this young forest and/or old-growth. *See id.* at 3-133; *see also id.* at 3-237 (arguing that Alternative 3 would "continue to provide marginal goshawk foraging and nesting habitat" because it would maintain 44 percent of the project area

in that hybrid category). Again, the FEIS has no authority for its mitigation claim. Instead, it asserts that 50 years is an appropriate indicator because "this is the minimum age at which suitable structure for nesting goshawks may be achieved." *Id.* at 3-133. However, whether nesting structure could occur in the second growth portion of a landscape is irrelevant to whether second growth provides critical foraging habitat. Indeed, it is essentially irrelevant to whether the landscape provides nesting habitat, unless it is so lacking in old growth that goshawks would have to nest in second growth or not at all. Moreover, 50 years is not even a threshold at which second growth can be relied on to provide nesting habitat, but only the first age at which it could conceivably do so. Equally fatal to the FEIS's effort to characterize this young growth as providing meaningful habitat, the research shows that goshawks in Southeast Alaska avoid even much older second growth, 75 to 150 year old stands of sawtimber, in favor of medium and high volume old growth. *See* PR 736_0271 at 36 (Iverson et al. (1996)).

In conclusion, the FEIS conveys a wholly misleading picture of the risks that goshawks already face in the project area, the additive risks that logging poses to local birds, and the broader potential consequences, not only of extirpation from northern Prince of Wales Island but also of undermining the viability of the Tongass-wide distinct population segment. NEPA does not permit the risks and impacts to be so ignored and mischaracterized.

V. THE FOREST SERVICE VIOLATED NEPA WHEN IT FAILED TO EITHER OBTAIN MISSING INFORMATION REGARDING GOSHAWKS AND WOLVES NEEDED TO ASSESS THE IMPACTS OF THE BIG THORNE PROJECT, OR JUSTIFY A CONCLUSION THAT IT COULD NOT OBTAIN SUCH INFORMATION.

The Forest Service acknowledges in the FEIS that it lacks certain critical information regarding goshawks and wolves. The Forest Service, however, failed to comply with NEPA's requirements regarding that missing information. Rather than proceed in an uninformed fashion, NEPA requires the Forest Service to obtain the missing information or to justify its omission, discuss in the FEIS its importance to the decision-making, and supply what evidence and analysis it can. For the reasons explained below, the Forest Service did not satisfy these obligations.

"[T]he very purpose of NEPA's requirement that an EIS be prepared for all actions that may significantly affect the environment is to obviate the need for [ ] speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action." *Found. for N. Am. Wild Sheep v. U.S. Dep't of Agric.*, 681 F.2d 1172, 1179 (9th Cir. 1982). The starting point of any analysis of an activity's impacts under NEPA is the collection and description of baseline data about the environment in which the activity is to occur, because, "[w]ithout establishing … baseline conditions … there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988); *see also Am. Rivers v. F.E.R.C.*, 201 F.3d 1186, 1195 n.15 (9th Cir. 2000); *Ctr. for Biological Diversity v.*

Bureau of Land Mgmt., 422 F. Supp. 2d 1115, 1163 (N.D. Cal. 2006) (baseline is the "heart of the EIS" and must "be accurate and complete").

The Council for Environmental Quality's regulations establish an agency's obligations when preparing an EIS in the face of incomplete or unavailable information. *See Montana Wilderness Ass'n v. McAllister*, 666 F.3d 549, 559-561 (9th Cir. 2011). Those regulations require agencies when "evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement" to determine whether missing information "relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives." 40 C.F.R. § 1502.22. "As long as the information is 'important,' 'significant,' or 'essential,' it must be provided when the costs are not exorbitant in light of the size of the project and/or the possible harm to the environment." *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1244 n.5 (9th Cir. 1984). If the costs are exorbitant (or the means of obtaining the information are unknown), then the EIS must still (1) state that the information is missing, (2) discuss its relevance, (3) summarize the existing relevant credible scientific evidence, and (4) evaluate the reasonably foreseeable significant adverse impacts based on generally accepted theoretical approaches or research methods. 40 C.F.R. § 1502.22(b).

By stating the obligation to develop missing information in terms of what is "essential to a reasoned choice among alternatives," 40 C.F.R. § 1502.22(a), the NEPA regulations link the requirement to the alternatives analysis that is the "heart of the environmental impact statement." 40 C.F.R. § 1502.14. *See also* 51 Fed. Reg. 15,618, 15,621 (Apr. 25, 1986) (Section 1502.22 furthers NEPA policy goals). Thus, the determination of what information Section 1502.22 requires agencies to obtain—what is "essential"—necessarily turns on the information needed to meet NEPA's requirement that an agency formulate and examine reasonable alternatives to a proposal that would lessen its impacts.

There are two key components to NEPA's alternatives requirement that together define "essential" information. First, NEPA requires an EIS to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public" and to "[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." 40 C.F.R. § 1502.14. Information is "essential" consistent with this mandate, therefore, if it is necessary to allow an EIS to "make an informed comparison of the alternatives." *Se. Alaska Conservation Council v. Fed. Highway Admin.*, 649 F.3d 1050, 1058 (9th Cir. 2011) (quotation marks and citation omitted).

Second, NEPA requires an agency to develop alternatives to its projects that would minimize environmental impacts. 40 C.F.R. § 1502.1 (an EIS must "inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."). *See Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 965 (9th Cir. 2005) (remanding decision to agency where lack of accurate information rendered an EIS unable to "inform[] decisionmakers and the public of the reasonable

alternatives which would avoid or minimize adverse impacts") (internal quotation marks and citations omitted); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 809-10 (9th Cir. 1999) (an EIS must analyze "effects of the actions in sufficient detail to be 'useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.'") (*quoting City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1160 (9th Cir. 1997)). Thus, information is also "essential" if it is necessary to develop alternatives that minimize impacts.

A. The FEIS Lacks Essential Information Regarding Goshawk Populations and Trends and Fails to Comply With NEPA's Obligations Regarding Missing Information.

The FEIS violates NEPA because it is missing information about goshawk populations that is essential to a reasoned choice among alternatives. Lacking the information, the FEIS also fails to show that obtaining it would necessarily entail exorbitant costs or unknown methods. Nor does the FEIS include the analysis and disclosure that NEPA requires in cases where the information cannot be developed on either financial or methodological grounds.

The FEIS lacks essential information about goshawks. Its description of the Affected Environment is devoid of any information about the actual population status of goshawks in the project area, in northern Prince of Wales, or in the region, apart from a bare observation that the subspecies "is of special concern to the State of Alaska . . . and has been included . . . on Audubon's Alaska WatchList." FEIS at 3-132. There are no data about, nor any qualitative description of, the size of the population or of any segment of it. There is nothing about population trends. There is nothing from which a reader could reach a reasoned conclusion about the current viability of the subspecies, other than a mention that USFWS declined to list the Southeast Alaska population in 2007. *Id*. The Effects section of the FEIS adds almost nothing to this extreme vacuum, noting simply that "there is a low abundance of goshawks on [Prince of Wales Island] due to the lack of prey." *Id*. at 3-230. In short, while the FEIS reports differential impacts from the developed alternatives, and concedes that Alternative 3 "would result in the greatest reduction in potential goshawk habitat," *id*. at 3-237, there is nothing from which to judge whether that difference among alternatives has any environmental significance at all.

The missing information is essential to a reasoned choice among alternatives. As discussed above, Queen Charlotte goshawk numbers in Southeast Alaska may well be low enough to call its population viability into question. Though the FEIS obscures this point, the wholesale loss of prime goshawk habitat entailed by the largest timber project planned by the Tongass National Forest in nearly 20 years would necessarily adversely affect goshawks that utilize the project area (whether they nest there or not). Without knowing more about the size and trends of the POW population of goshawks, neither the public nor decisionmakers can understand what is at stake in the choice of which alternative to pursue. If a substantial portion of the local population uses the project area and already is experiencing reproductive failure or other

decline, Alternative 3 could trigger a gap in the subspecies' range or even take the entire Southeast Alaska population below self-sustaining levels. Thus, because the Forest Service is obligated to maintain a well-distributed and viable population of goshawks across the Tongass, the information in question is essential not merely to a reasoned choice but to a lawful one.

More broadly, depending on the size of and trends in the goshawk population around POW, significant additional habitat loss could push it across a threshold leading to listing of all goshawks in the region, under the federal ESA. As discussed above, USFWS has determined that goshawks in Southeast Alaska constitute a distinct population segment, *see* 72 Fed. Reg. 63,129, a taxon listable as threatened or endangered provided it meets ESA criteria for those statuses. *See* 16 U.S.C. § 1532(16) ("species" includes "any distinct population segment"). USFWS has also concluded "that Prince of Wales Island and the surrounding islands constitute a significant portion of the Alaska DPS's range." 72 Fed. Reg. 63,137. Because a federally "threatened species" is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range," 16 U.S.C. § 1532(20), and the Prince of Wales Island area harbors a significant portion of a DPS, threats to the continued presence of goshawks there could lead to listing of all such birds throughout Southeast Alaska. No rational decisionmaker would knowingly undertake an action that precipitated such an outcome, even if his or her sole concern were the well-being of the local timber industry. The missing information is thus, on this score as well, essential to a reasoned choice among alternatives.

Nothing in the FEIS shows that the missing information "cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known." 40 C.F.R. § 1502.22(b). Nor is it plausible that the Forest Service could meet this standard. While goshawks are elusive and widely spread in Southeast Alaska, to excuse the complete absence of population data, the agency would have to show that it was beyond its means to design and employ a random sampling methodology robust enough to yield statistically significant information, either Tongass-wide or on Prince of Wales Island.

Moreover, even if the information could not be obtained, the FEIS would still have to comply with a set of NEPA disclosure requirements, none of which it has met here. The FEIS includes no acknowledgement that "such information is incomplete or unavailable." 40 C.F.R. § 1502.22(b)(1). There is no discussion whatsoever "of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts." 40 C.F.R. § 1502.22(b)(2). The FEIS has no "summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts" of the logging on plausibly distressed goshawk populations – either local or regional. 40 C.F.R. § 1502.22(b)(3). Nor does the FEIS include "the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community." 40 C.F.R. § 1502.22(b)(4). Instead, silence prevails. That promotes exactly the head-in-the-sand decision-making NEPA was enacted to make illegal and bring to an end.

The BA/BE for the Big Thorne Project contains marginally more information than the FEIS, but does not bring the Forest Service into compliance with NEPA. It observes that there is a "lack of information regarding goshawk population trends," and links that to high concerns about the species' viability in the region. PR 736_0418 at 24 (TNF 2013). If NEPA allowed such disclosures to be relegated to documents supporting an EIS, that would arguably fulfill 40 C.F.R. § 1502.22(b)(1). NEPA does not, however, permit such obfuscation. And at all events, nothing in the BA/BE shows that the information cannot be obtained, nor meets the requirements of 40 C.F.R. § 1502.22(b)(2)-(4) for omitting it.

B. The FEIS Acknowledges a Lack of Information Regarding the Current Wolf Population Both in the Big Thorne Project Area and Prince of Wales Island But Does Not Comply With NEPA's Obligations to Address Missing Information.

According to the FEIS, the Forest Service does not know the current population of the wolf in the Big Thorne Project area or the population on Prince of Wales and the surrounding islands as a whole. The FEIS acknowledges:

> Current estimates of the wolf population in GMU2 are lacking; however, approximately 250-350 wolves were estimated to inhabit Prince of Wales Island and the surrounding islands (Person et al. 1996). However, the population on Prince of Wales Island may be lower than in previous years based on the lack of scats observed during 2009 and 2010 field effort (e.g., 30-35 scats collected versus 154 collected during a 1993-1994 effort; Person 2010, Kohira 1995). That observation was consistent with testimony from local trappers during the 2010 Alaska Board of Game meeting in Ketchikan (Logan, USDA Forest Service, personal comm. 2012). The Tongass National Forest is currently partnering with ADF&G to establish protocols for estimating and monitoring wolf population status and trends in GMU2.

FEIS at 3-113–3-114.

Here, the Forest Service acknowledges "[c]urrent estimates of the wolf population in this area are lacking" and, as a result, it is relying on anecdotal evidence and outdated population estimate from 1996 to describe Big Thorne's effects on wolves. *Id*. The Forest Service also acknowledges in the FEIS that it is possible to obtain a wolf population estimate. *See, e.g.*, FEIS at 3-117 ("The Forest Service and the State of Alaska are currently working to obtain more accurate wolf population estimates."). Finally, it also acknowledges that the action alternatives will have different impacts on wolves. *See, e.g.*, FEIS at 3-182 ("Alternative 1 would have no direct effect to wolves because no timber would be harvested and no roads would be constructed."); *id*. at 3-184 ("Alternative 2 has the potential to result in a local reduction in the wolf prey base and thus in the wolf density."); *id*. at 3-184 ("Alternative 2 would only locally

increase human access in the project area; however, this is an area where wolf mortality concerns have been identified."); *id*. at 3-187 ("Effects to modeled deer densities, and thus the wolf prey base, under Alternative 4 would be the least among the alternatives").

The FEIS describes various ways the wolf population on Prince of Wales Island might be affected by the Big Thorne Project as result of losses in deer habit. *See, e.g.,* FEIS at 3-185 ("Thus, Alternative 2 may result in local declines in the deer population due to reduced habitat capability which could affect wolves, and thus hunters and trappers"); *id*. at 3-185 ("Long-term reductions in deer habitat capability (at the stem exclusion stage) from existing (2013) amounts under Alternative 3 would be the greatest in WAA 1420 (20 percent), followed by WAAs 1315 (14 percent), 1319 (10 percent), and 1318 (9 percent). This equates to a total reduction of 1.3 to 2.3 deer per square mile from existing (2013) levels depending on the WAA (Table WLD-24). . . . Alternative 3 has the potential to result in a local reduction in the wolf prey base and thus potentially in the wolf density"); *id*. at 3-186 ("OGR modifications proposed under Alternative 3 would maintain or reduce inclusion of habitat suitable for wolf dens sites and other areas identified by the interagency review team (IRT) as being important to wolves."); *id*. at 3-186 ("Future timber harvest and road building in these [OGR modified] areas would have the potential to reduce the ability of wolves to move and disperse or increase the risk of harvest."); *id*. at 3-181 ("there remain substantial areas (including the project area WAAs) with lower quality habitat that, on their own, would not be able to support a local population (i.e., population sinks). In these areas, local population persistence would continue to rely on dispersal of wolves from surrounding areas (source populations).").

The FEIS also describes varying ways deer habitat, including winter habitat, will be lost as a result of the Big Thorne Project. *See, e.g.,* FEIS at 3-170 ("Alternative 1 would have no direct effects to deer habitat capability or to average snow, deep snow, or non-winter habitat"); *id*. at 3-171 ("Alternative 2 would result in an immediate reduction in deer habitat capability by WAA ranging from 4 to 5 percent from current conditions, the second highest among the alternatives[.]"); *id*. at 3-172 ("Alternative 3 would result in an immediate reduction in deer habitat capability by WAA ranging from 5 to 9 percent from current conditions, the most among the alternatives[.]");*id*. at 3-173 ("Alternative 4 was designed in part to minimize impacts to deer such as by harvesting less winter habitat, and maintaining more travel corridors."); *id*. at 3-174 ("Alternative 5 would result in an immediate reduction in deer habitat capability by WAA ranging from 4 to 5 percent from current conditions[.]"); *id*. at 3-171 ("Alternative 2 would result in the harvest of approximately 1,537 total acres of deep snow winter habitat (3 to 7 percent reduction from current conditions by WAA), 4,787 total acres of average snow winter habitat (3 to 6 percent reduction from current conditions by WAA)"); *id*. at 3-172 ("Alternative 3 would result in the harvest of approximately 2,358 total acres of deep snow winter habitat (6 to 13 percent reduction from current conditions by WAA), 6,706 total acres of average snow winter habitat (3 to 9 percent reduction from current conditions by WAA)"); *id*. at 3-173 ("Alternative 4 would result in the harvest of approximately 1,319 total acres of deep snow winter habitat (2 to 6 percent reduction from current conditions by WAA), 4,421 total acres of average snow winter habitat (2 to 5 percent reduction from current conditions by WAA)"); *id*. at 3-174 ("Alternative 5

would result in the harvest of approximately 1,613 total acres of deep snow winter habitat (3 to 7 percent reduction from current conditions by WAA), 5,085 total acres of average snow winter habitat (3 to 6 percent reduction from current conditions by WAA)"). As explained above, and in the Person Statement, ¶21-23, 31, continued losses in habitat capability directly affects wolf viability. *See, e.g.,* FEIS at 3-165 ("[d]eclines in the deer population resulting from reduced [deer] habitat capability may decrease the availability of deer to wolves and hunters (Person 2001; Farmer et al. 2006; Brinkman et al. 2009)"). Thus, differences between the alternatives will result in different effects on deer and deer habitat and, as result, will affect wolves in different ways.

The problem with the Forest Service's failure to confront this missing information is twofold. First, the Forest Service does not have an accurate baseline of the wolf population, making it impossible to assess the effects of Big Thorne Project on the wolves. *See Half Moon Bay*, 857 F.2d at 510 ("without establishing … baseline conditions … there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA"). Stated differently, what the Forest Service hopes will be only localized reductions in wolves as a result of the Big Thorne Project might actually be extirpation from the Big Thorne Project area, Prince of Wales Island, and possibly the Prince of Wales Archipelago. *See* Person Statement, ¶¶ 13.d, 31. It is impossible to know because the Forest Service never answered the questions. Here, the precipitous declines in the wolf population, *see supra* Section III.A.1, mean that the Forest Service needs to have an accurate picture of the wolf population in the Big Thorne Project area and Prince of Wales to prevent exacerbating those declines or even extirpation.

Second, the Forest Service's analysis is constrained because it lacks information that is essential to designing alternatives that can minimize the effects to wolves. Without an accurate wolf population estimate, the Forest Service is flying blind. If it had obtained an accurate population estimate both of the Big Thorne Project area and Prince of Wales Island as a whole, then it could have designed alternatives to address wolf concerns. As it stands, the FEIS acknowledges, for example, that will be "substantial areas (including the project area WAAs) with lower quality habitat that, on their own, would not be able to support a local population (i.e., population sinks)" FEIS at 3-185, but the Forest Service lacks the information to formulate alternatives that could minimize those concerns.

The FEIS acknowledges the Forest Service lacks current information regarding the number of wolves in the Big Thorne Project area as well as Prince of Wales Island. Yet, the Forest Service failed to comply with the requirements of 40 C.F.R. § 1502.22 to address this missing information and inform its decision-making regarding the effects of, and alternatives to, the Big Thorne Project. As a result, the Forest Service violated NEPA.

VI. THE SELECTED ALTERNATIVE DOES NOT ENSURE THE POPULATION VIABILITY OF GOSHAWKS.

As for wolves and all other native vertebrates, the Forest Service is obligated to ensure the viability of goshawks on the Tongass National Forest. The viability standard incorporated into TLMP requires that populations be "well-distributed in the planning area (i.e. the Tongass National Forest)." TLMP at 4-89 (II.B). As such, it functions to prohibit local extirpation of goshawks, as well as their outright loss from the entire region.

Substantial doubt exists about the status and fate of goshawks in and around the Tongass. As the BA/BE for the Big Thorne Project concedes, "concern for the species' viability in southeast Alaska remains high due to lack of information regarding goshawk population trends as well as reductions in the amount of old-growth forest due to timber harvest." PR 736_0373 at 24 (TNF (2013)). Queen Charlotte goshawks depend on high and medium volume old growth that has been substantially liquidated in the region. *See* PR 736_271 at 37 (Iverson et al. (1996)) (finding "a strong pattern for selection of very high to moderately productive old-growth forest"); *see also* TLMP FEIS at H-139 (logging disproportionately focused on low elevation large tree forest). Habitat loss has been particularly great in and around POW, where 26% of productive old growth had been logged by 2006. 72 Fed. Reg. at 63136. In North Central POW, the vicinity of the Big Thorne project, habitat loss is of even greater concern, with the Forest Service projecting that full TLMP implementation will see 49% of all productive old growth logged, and 59% of all high volume old growth. FEIS at 3-144. In the project area itself, implementation of Alternative 3 immediately produces a landscape missing 37% of all old growth and 46% of its original high volume. *Id.* These numbers likely disguise additional habitat degradation caused by logging's fragmentation of large forest blocks into smaller ones. *See* 736_2241a (Greenpeace Submissions, Scoping Comments) (Powell et al. (1997) at 2) ("human-caused fragmentation of blocks, or patches, of wildlife habitat into smaller blocks threatens the persistence of species in, and often beyond, the fragmented area"); PR 736_0271 at 39-40 (Iverson et al. (1996)) (authors unable to determine if Queen Charlotte goshawks avoid forest edge environments, but State of Alaska biologists found that the birds selected the interior of old growth blocks over forest near clearcuts).

If it wants to reduce goshawk habitat further, the Forest Service can only ensure the viability (including distribution) of this at-risk species in the Tongass in one of two ways. It must either demonstrate that the size and trend of the bird's population provide a sufficient margin of safety, so that impacts from habitat loss cannot plausibly put viability at risk. Or, absent reliable population data, it may use habitat as a proxy, if it has a sound evidentiary basis for calculating how much habitat will ensure a viable, well-distributed population and maintains that much. *See, e.g., The Lands Council v. McNair*, 537 F.3d 981, 997-98 (9th Cir. 2008) (en banc) ("when the Forest Service decides, in its expertise, that habitat is a reliable proxy for species' viability in a particular case, the Forest Service nevertheless must both describe the quantity and quality of habitat that is necessary to sustain the viability of the species in question and explain its methodology for measuring this habitat"); *Idaho Sporting Congress v. Rittenhouse*, 305 F.3d 957,

972 (9th Cir. 2002) (methodology for using habitat as a proxy must "reasonably ensure viable populations of the species").

Because the Forest Service lacks population and trend data for goshawks in the region, as discussed above, the agency can only ensure that further habitat destruction is lawful if it knows it is maintaining sufficient goshawk habitat. The Big Thorne FEIS points to the reserve-based TLMP wildlife conservation strategy as helping to accomplish that, while acknowledging some uncertainty about its sufficiency. FEIS at 3-45, 3-98, 3-133. The document also relies on the percentage of residual forest cover in the project area that is at least 50 years old. *Id.* at 3-230, 3-237. And it counts its "legacy" standard, which leaves 30% forest cover in some clearcuts, as additional evidence that it is meeting its viability obligations. *Id.* at 3-133, 3-230; *see also id.* at 3-420 (describing legacy standard application). None of these measures, however, accomplishes the agency's viability goal for goshawks.

The reserve-based wildlife conservation strategy in TLMP was not designed for goshawks. As a recent review noted, "the conservation strategy for northern goshawks in southeastern Alaska became a composite of conservation measures superimposed on a conceptual framework developed for other vertebrate species of concern." PR 736_2204 at 7 (Smith (2013)). At the behest of Congress, when the TLMP wildlife reserve system was proposed, the Alaska Region of the Forest Service commissioned the agency's Pacific Northwest Research Station to conduct a peer review of it. The Research Station's review identified several weaknesses in the conservation strategy, including that "[t]he particular pattern of Habitat Conservation Areas that it suggests will not ensure viability of all species." PR 736_2241a (Greenpeace Exhibit 29 at 5) (Kiester & Eckhardt (1994)). The Review concluded that goshawks were of particular concern:

> This species is likely to become protected under the Endangered Species Act. Thus, management planning with regard to the northern goshawk will need to be especially conservative. Because goshawks require large territories to thrive, several reviewers are of the opinion that even large [habit conservation areas (HCAs)] were not adequate to meet its needs.

Id. at 23-24. Individual reviewers' comments confirm the strategy's inadequacy. For example, ornithology professor Craig Benkman found that:

> [T]he recommended HCA sizes and distances between them inadequately protect the goshawk. Large HCAs need to support eight pairs of goshawks, but based on the [strategy] authors earlier work large HCAs will support at most three pairs of goshawks. Similarly, medium HCAs will usually support no goshawk pairs, not two pairs.

Id. at 39. Prominent population biologist Russell Lande was concerned that even if the HCAs could sustain as many goshawks as the strategy proposed, local extinctions could still occur:

> In the *Strategy*, large HCAs composed of 20,000 contiguous acres of old growth . . . are stated to be capable of supporting 8 pairs of goshawks . . . . There is no observational evidence or modeling cited . . . to suggest that these numbers will adequately reduce local extinction rates. Such small populations of . . . goshawk would be subject to strong effects of demographic stochasticity and possible inbreeding depression . . . .

Id. at 79 (emphasis in original).

Recently, a detailed examination of how well the conservation strategy actually protects known goshawk use areas also found the strategy fundamentally inadequate. The strategy protects old growth in reserves, irrespective of whether that is the forest selected by real-world goshawks, spread thinly across the region and under stress from lack of prey. Analyzing the old growth forests around a very large number of identified nest sites, the study discovered that most of them were badly unprotected by the strategy.

The study found a strong association of Queen Charlotte goshawks with old growth. All 136 nest areas reviewed were established in old growth, almost always predominantly high or medium volume. PR 736_2204 at 4 (Smith (2013)). The study reported that "breeding pairs in managed landscapes of Southeast Alaska likely rely almost entirely on productive old-growth forests as foraging and nesting habitat." *Id.* at 7. It concluded that both compositional analyses and radiotelemetry studies showed that "northern goshawks strongly selected medium- and high-volume old-growth forests." *Id.*

Most tellingly, looking at the conservation status of areas actually used by goshawks in the region, the study found that TLMP measures left most of them unprotected. Of the nest areas (10.5 hectares or 26 acres in size, *id.* at 3) around nest sites actually selected by goshawks, the study found that many, in fact more than 30%, were overwhelmingly available for logging, with greater than 91% of their acreage unprotected. *Id.* at 4. At the larger scale of post-fledging areas, and examining not the composition of the entire landscape irrespective of goshawk use, but rather the status of lands around actual goshawk nest areas, the study found that the conservation strategy also left goshawk territories exposed to untenable alteration. Most – 60% – of all the identified post-fledging foraging areas were predominantly unsecure, that is, had the majority of their acreage left unprotected by the strategy. *Id.* at 6. Thus, the study found that:

> conservation measures of the Tongass Land and Resource Management Plan contribute about half the secure habitat recommended for post-fledging areas in the southern portion of this species range ... and ... less than half the relative amount of habitat documented in nest areas in Southeast Alaska. A similar conclusion was obtained for the broader landscape (21 km^2) that surrounded each nest.

Id. It concluded that TLMP standards and guidelines were unlikely to meet even goshawk nest area objectives established for other regions, *id.*, that those objectives may *underestimate* the habitat needs of breeding pairs in Southeast Alaska, *id.* at 7, and that the belief that TLMP's system of old growth reserves "will mitigate this deficiency is not supported" by the study. *Id.* at 6.

The Big Thorne FEIS also places great, and mistaken, reliance on the percent of forest cover post-logging. It measures impacts to goshawks in terms of the percent of the landscape that will remain in old growth, of any sort, as well as "mature young growth" at least 50 years old. *See, e.g.*, FEIS at 3-133. Like the conservation strategy, this approach is flawed by ignoring the spatial arrangement of the acres measured, either in relation to one another or with respect to actual goshawk use areas. It also ignores goshawks' well-established strong selection for specifically high and medium volume old growth, discussed above. *See also* PR 736_0341 at 5 (USFWS (2007)). More fatally, it counts as preferred habitat second growth stands as young as 50 years. This is forest that goshawks typically avoid. *See* PR 736_0271 at 36 (Iverson et al. (1996)) (showing that even "mature sawtimber," aged 75 to 150 years, *id.* at 34, was significantly less selected than old growth, while younger stands, classified as "primary succession" and categorized with clearcuts, *id.* were even more avoided). The FEIS cites a USFWS review as support for its 50 year standard. FEIS at 3-133. The review, however, is discussing a study looking at nest tree structure, rather than foraging habitat, and far from a blanket endorsement of all such young stands as suitable, even just for nesting, it says only that "suitable structure is apparently achieved in a minimum of about 50 years on the most productive sites." PR 736_0341 at 28 (USFWS (2007)). The FEIS also cites to "Doyle 2005," FEIS at 3-133, to support the assertion that 40-60 percent of goshawk territories need to be in old growth or "mature young growth" of at least 50 years, but that study in fact considered as "mature" only second growth stands of 81-250 years. Exhibit 17 at 7 (Doyle (2005)). And finally, while the FEIS concedes that dropping "old growth and mature second growth forest to below 50 percent ... could result in portions of the landscape becoming marginal or unsuitable for goshawks," FEIS at 3-230, Alternative 3 does not meet even this watered down and unsupported standard. *See id.* at 3-237 (project area as a whole would have only 44 percent of this forest category post-logging).

As discussed above, the FEIS and biological assessment also repeatedly mention the TLMP legacy standards as a mitigating factor. The short answer to those optimistic assertions is that the FEIS offers no scientific support for them that relates to habitat use by Queen Charlotte goshawks. Nor are appellants aware of any.

In sum, the Forest Service has not ensured the population viability of goshawks against the impacts of the massive Big Thorne Project. The agency has neither accurate population information nor reliable habitat standards for goshawks in northern Prince of Wales Island or the Tongass National Forest as a whole. As a result, it has no way of knowing whether further loss of habitat would cause outright disappearance of goshawks from the project area and beyond. Were that to happen, it would amount to local extirpation and lowering of the regional population with attendant loss of viability. Neither outcome is consistent with the Forest Service's wildlife obligations. And proceeding with the Big Thorne Project as planned, would mean that the agency failed to insure the population viability and distribution of goshawks.

VII. THE FEIS FAILS TO CONSIDER ALTERNATIVES THAT EXAMINED A SMALLER VOLUME SALE THAT AVOIDED KEY HABITAT LOSSES AND MINIMIZED ROAD CONSTRUCTION.

The Forest Service is obligated to give diligent consideration to a project's alternatives. *See* 40 C.F.R. § 1502.14. Here, the Forest Service failed to consider a small volume alternative that avoided logging critical areas of deer habitat and minimized the construction of new roads, which would have minimized the environmental impacts of the sale. As a result, the FEIS fell short of NEPA's obligations

Under NEPA's regulations, an EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives [to a proposed action], and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." 40 C.F.R. § 1502.14(a). "[I]f the agency fails to consider a viable or reasonable alternative, the EIS is inadequate." *Se. Alaska Conservation Council v. Fed. Highway Admin*., 649 F.3d 1050, 1056 (9th Cir. 2011) (*citing Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir.2008); *'Ilio'ulaokalani Coalition v. Rumsfeld*, 464 F.3d 1083, 1095 (9th Cir.2006)).

The FEIS's statement of purpose and need explains that "the Big Thorne Project is to <u>contribute to</u> a long-term supply of economic timber for the timber industry on Prince of Wales Island and on the Tongass National Forest in general. FEIS at 1-4 (emphasis added). The FEIS explains that "[t]he Big Thorne Project is proposed at this time to respond to the underlying need for a reliable, economic, and long-term timber supply." FEIS at 1-5. According to the Forest Service, "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*.

Any number of alternatives might accomplish this purpose and need, but the Forest Service did not consider these alternatives. Most notably, the Forest Service could have considered much smaller volume sales, rather than the massive alternatives examined in the FEIS. These sales would have contributed to the long term supply of economic timber. Indeed, the Big Thorne Project dwarfs any logging on the Tongass in recent history. *See supra* Section II.A.

Here, the Forest Service only considered action alternatives that involved massive volume, long-term proposals in portions of the Tongass that have already suffered the most damaging effects of logging. "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Westlands Water*., 376 F.3d at 868. The Forest Service acted unlawfully when it failed to consider smaller volume sale alternatives that could have minimized the losses of old growth habitat, reduced the construction of new roads, and avoided logging massive portions of Prince of Wales Island, in some instances for a third time.

VIII. THE FOREST SERVICE ACTED ARBITRARILY AND CONTRARY TO TLMP WHEN IT OVERRODE EXPERT OPINION REGARDING OLD GROWTH RESERVE BOUNDARY MODIFICATIONS.

In the ROD, the Forest Service approved the Big Thorne Project approved the decision to move several existing OGR boundaries. TLMP requires that any such modifications "provide comparable achievement" of the plan's old growth goals and objectives. *See* TLMP at 3-62. Here, the Interagency Old Growth Reserve Review team (OGR Review Team) for the Big Thorne Project concluded several of the proposed OGR boundary changes did not meet this standard. In response, the Forest Service accepted some of those conclusions but in other instances the Forest Service overrode the OGR Review Team's conclusions. The Forest Service, however, failed to adequately explain its decisions, making it impossible to view the ultimate determination as anything more than an arbitrary unilateral decision by the Forest Supervisor. As explained below, this was unlawful.

Under TLMP, OGR boundaries can be modified but only under very specific circumstances. More specifically, the plan provides that: "Alternative reserves must provide comparable achievement of the Old-growth Habitat [Land Use Designation] goals and objectives. Determination as to comparability must consider the criteria listed in Appendix K." TLMP at 3-62 (WILD1, B.2).

In the ROD, the Forest Supervisor explains that he "selected alternative locations for small old-growth reserves for VCUs 5790, 5800, 5810, 5820, 5830, 5850, and 5950."[13] ROD, 6. The OGR Review Team opposed many of the proposed changes in these VCUs based on the biological determination that the proposed changes would not provide comparable achievement of the Old-growth LUD goals and objectives. *See* PR 736_2191 (OGR Report). The Forest Service overrode many of these conclusions, but provided weak justifications for accepting some of the OGR Review Team's conclusions regarding comparability and rejecting those conclusions in other instances.

For example, in VCU 5810 the OGR Review Team concluded the proposed change in the southern OGR would provide for comparable achievement. PR 736_2191 at 5 (OGR Report). The OGR Review Team, however, "strongly recommend[ed] retention of the north OGR as currently mapped" PR 736_2191 at 5 (OGR Report), explaining that "[a]ny reduction in POG in the northern OGR, with substitute acres designated elsewhere in the VCU, would reduce effectiveness of the OGR and <u>would not</u> provide comparable achievement." *Id*. (emphasis in original). Yet, in the ROD, the Forest Service did exactly the opposite:

> The proposed modification in VCU 5810 makes no changes to the South OGR. The north OGR contains about 1,560 acres, of which about 608 acres is POG. In 2000, under a previous decision changes were made to the OGR that resulted in reduction of POG below the Forest Plan requirement. Although on the surface this appears to be inconsistent with the Forest Plan, legacy acres and stream buffers among these units and extending to the existing OGR maintain some elevation travel corridors for wildlife. In addition, the Selected Alternative makes no changes to the south OGR which contains 2,188 acres, including about 1,421 acres of POG, which will continue to meet the goals and objectives of the Old Growth Habitat LUD and fulfill habitat conservation and timber harvest objectives.

ROD at 6. The Forest Service explicitly recognized that these changes "would reduce total OGR and POG acreages." ROD at A3-3 (as well as those approved in VCUs 5790 and 5850).

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[13] The Forest Supervisor elected "not to modify the OGR boundaries as depicted in Alternative 3 for VCUs 5840, 5860, 5960 and 5972," explaining that this decision "will maintain current connectivity, large blocks of [productive old-growth (POG)], low elevation POG, deep snow deer and marten habitat and potential goshawk and marbled murrelet nesting habitat." ROD at 6. The ROD, however, does not explain why these same concerns do not apply to the remaining OGR boundary changes, which the Forest Service did approve. The Forest Service acted arbitrarily as a result.

This is just an illustration of the larger problem that was created when the Forest Service failed to explain adequately why it overrode the conclusions of the OGR Review Team's conclusions regarding "comparable achievement" of old-growth LUD goals and objectives. It appears the Forest Supervisor used unilateral decision-making authority to dictate the location of small OGRs, which arbitrarily sacrificed biological needs for timber and economic reasons. As a result, the Big Thorne Project is unlawful in this regard.

IX. CONCLUSION

For the foregoing reasons, Appellants request that the ROD and FEIS be reversed and remanded in light of the failure of those documents to assess accurately the need for the Big Thorne Project, its economic costs, and its impact on wildlife. Any new decision must correct these errors, but—in light of the long-term weak demand for timber and the extreme threat posed to wolf and goshawk populations and hunting opportunities on Prince of Wales Island—the better course would be to drop any plans for old growth logging in the project area. Until a defensible decision is made, no old growth logging or road building should proceed.

Thank you for your careful attention to this appeal.

Sincerely,

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EXHIBIT LIST

Exhibit No.	Description
1	USDA Forest Service, *Trajectory to Young Growth on the Tongass National Forest*, Issue Paper (Jan. 2013) (January 2013 Issue Paper)
2	USDA Forest Service, Timber Volume Under Contract, FY09, *available at* http://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785
3	USDA Forest Service, Timber Volume Under Contract, FY10, *available at* http://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785
4	USDA Forest Service, Timber Volume Under Contract, FY11, *available at* http://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785
5	USDA Forest Service, Timber Volume Under Contract, FY12, *available at* http://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785
6	USDA Forest Service, *Tongass Limited Shipping Policy*, Issue Paper (Apr. 2012)
7	U.S. Forest Service, *State of the Tongass National Forest - FY2012* (Apr. 2013), *available at* http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5416953.pdf
8	Declaration of Joseph R. Mehrkens, Exhibit 29 to Plaintiffs' Brief in *Tongass Conservation Society v. Cole*, No. 1:09-cv-00003-JWS (initially filed as Exhibit D to The Wilderness Society's Administrative Appeal of 2008 Tongass Land and Resource Management Plan Amendment) (May 15, 2008)
9	Order and Opinion, *Tongass Conservation Society v. Cole*, No. 1:09-cv-00003-JWS (D. Alaska Dec. 7, 2009)
10	USDA Forest Service, *State of the Tongass - FY2011*, *available at* www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5399905.pdf
11	USDA Forest Service, *USDA Investment Strategy in Support of Rural Communities in Southeast Alaska 2011-2013* (Nov. 2011) (USDA Investment Strategy)

12 Table 2. Units Recommended for Exclusion by the U.S. Fish and Wildlife Service and State of Alaska

13 Table 3. Additional Units with Deep Snow Deer Winter Range

14 The Shipley Group. 2009. *Goshawk Survey, Soule River Watershed, Southeast Alaska, 26-28 July 2009* (The Shipley Group, Soule River Survey 2009)

15 Schempf, Phil, and Teresa Woods. 2000. *Summary of Status of Queen Charlotte Goshawk Remand* (Schempf and Woods 2000)

16 Flatten, Craig, Kimberly Titus, and Richard Lowell. 2001. *Northern Goshawk Monitoring, Population Ecology, and Diet on the Tongass National Forest, 1 April 1991 – 30 September 2001*. Alaska Department of Fish and Game. Final Research Report. Endangered species conservation fund federal aid grant SE-4, studies 2 to 6. Juneau, Alaska. 32 pp. (Flatten et al. 2001)

17 Doyle, Frank I. 2005. *Breeding Success of the goshawk (A. g. laingi) on Haida Gwaii/Queen Charlotte Islands: Is the population continuing to decline?* Goshawk Productivity and Habitat Requirements 2004-2005 (Doyle 2005)

18 U.S. Fish and Wildlife Service. 2010. *Updated Appendices Queen Charlotte Goshawk Status Review Incorporating The Coastal Mainland of BC and New Protected Areas On the Queen Charlotte Islands, BC* (FWS, Updated Appendices to Status Review 2010)

19 Crocker-Bedford, D. Coleman. 1994. *Conservation of the Queen Charlotte Goshawk in Southeast Alaska* (Crocker-Bedford 1994)