SOUTHEAST ALASKA CONSERVATION COUNCIL – WRANGELL RESOURCE COUNCIL -- ALASKA WILDERNESS LEAGUE – AUDUBON ALASKA DEFENDERS OF WILDLIFE – EARTHJUSTICE NATURAL RESOURCES DEFENSE COUNCIL – SIERRA CLUB WOMEN'S EARTH AND CLIMATE ACTION NETWORK (WECAN)

July 18, 2016

VIA ELECTRONIC MAIL AND U.S. MAIL

Robert Dalrymple
District Ranger
Wrangell Ranger District
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Re: Wrangell Island Project

Dear Mr. Dalrymple:

The undersigned organizations submit these comments on the Wrangell Island Project Draft Environmental Impact Statement (DEIS). These comments are in addition to separate comments these groups may submit. These groups have long-standing interest in the social and ecological values of the Tongass National Forest and any developments that may affect those values. For the reasons described below, the Forest Service should not pursue the Wrangell Island Project.

Southeast Alaska's tourism, recreation, and fishing industries long ago supplanted industrial-scale logging as the region's main economic drivers. The tourism industry, for example, accounts for 28 percent of the employment[1] and generates an annual $1 billion economic benefit.[2] The salmon fishing industry contributes another $1 billion annually to the regional economy[3] and accounts for 12 percent of Southeast Alaska's employment.[4] In contrast, the arts

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[1] McDowell Group, *Economic Impact of Alaska's Visitor Industry 2013-14 updates* at 1 (Feb. 2015). For the agency's convenience, the documents cited in this comment letter (with the exception of the documents included in the Wrangell Island Project planning record and/or the 2008 Amended Tongass Land Management Plan administrative record) were Express mailed separately as of today's date.

[2] *Id*. at 8.

[3] TCW Economics, *Economic Contributions and Impacts of Salmonid Resources in Southeast Alaska* at 16 (July 2010) (figure calculated based on data from 2007).

[4] *Id.* at 17, Fig. 11; Southeast Conference, Southeast Alaska by the Numbers 2015 at 4 (Sept. 2015).

sector alone is nearly twice the size of the regional timber industry.[5] Sustainable industries are Alaska's future, but they depend on healthy watersheds, abundant fish and wildlife habitat, and scenic landscapes that the Wrangell Island Project will destroy.

The Wrangell Island Project raises significant and pervasive environmental concerns in large part because it proposes such a massive old-growth logging project in a portion of the Tongass that has already suffered some of the worst impacts from logging. In fact, the Forest Service is unable to conclude that fish and wildlife populations will be sustainable after this timber sale project, explaining instead that the agency believes these populations should continue to "persist." Elsewhere the DEIS acknowledges that the long-term viability of endemic species, even without the Wrangell Island Project, "is unknown, but of increasing concern."[6] For example, virtually the entire population of a subspecies of the southern red-backed vole on the Tongass National Forest lives on Wrangell Island, but the agency has no idea how many remain or whether the population will remain viable after the proposed logging. The Alaska Department of Fish and Game (ADF&G) has raised repeated and consistent concerns regarding the loss of old-growth habitat for bears, but the Forest Service ignores those concerns entirely. And, with regard to Sitka black-tailed deer and Alexander Archipelago wolf, the agency admits the amount of old-growth habitat remaining today is already below the level the agency generally considers sufficient to support a sustainable relationship between wolves, deer, and deer hunters. Again the agency is unable to say that this relationship will remain stable after the Wrangell Island Project. As a result, deer hunters on Wrangell, especially those who hunt from the road system, will experience negative, long-term effects from this sale due to loss of old-growth habitat and the resulting decline in deer.

In addition to the environmental damage the Wrangell Island Project will cause, the project is the latest illustration that the Tongass timber program has operated at massive economic losses to United States taxpayers. According to the U.S. Government Accounting Office, "[t]he Forest Service reported an average of $12.5 million annually in timber-related expenditures for the Tongass from fiscal years 2005 to 2014. During that period, it reported receiving an average of $1.1 million in revenues associated with timber harvested from the Tongass."[7] Additionally, every alternative presented in the DEIS reflects a significant economic loss based on the indicated advertised rate. The Forest Service, however, never addresses the consequences of that economic reality. It is a remarkable critique of the Tongass timber program that the Forest

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[5] Southeast Conference, The Arts Economy of Southeast Alaska at 1 (Sept. 2014).

[6] DEIS at 83.

[7] U.S. Government Accountability Office, Tongass National Forest, Forest Service's Actions Related to Its Planned Timber Program Transition at 7 (2016); *see also* Taxpayers for Common Sense, Money Losing Timber Sales: Tongass National Forest at 1 (Mar. 2015) ("From 2008 through 2013, the Forest Service spent $139.1 million on timber sales (including road construction) in the Tongass and received $8.6 million in proceeds from these sales, a net loss of $130.5 million."); U.S. Forest Service, State of the Tongass National Forest (FY 2009 – 2013); Headwaters Economics, The Tongass National Forest and the Transition Framework: A New Path Forward? (Nov. 2014).

Service has proposed a timber sale project that as whole could not be profitable based on today's circumstances.

For all of these reasons, the Wrangell Island Project fails to advance the Department of Agriculture's visionary goal of "transitioning quickly away from timber harvesting in . . . old-growth forests."[8] The Wrangell Island Project would entrench and prolong the existing unsustainable old-growth industry. It would provide 65 million board-feet (MMBF) of timber, 100 percent of which is old-growth. Despite this, the DEIS does not identify even one economically viable action alternative under prevailing market conditions. As a result, if the Wrangell Island Project encourages any investment at all, it would be only in more industrial-scale old-growth logging that is not environmentally or economically sustainable. Sustaining and encouraging long-term investment in the existing, subsidy and export dependent old-growth industry is the opposite of transitioning quickly out of it. Instead the Forest Service should redirect its efforts to fostering investment in sustainable economic enterprises and a rapid reduction in old-growth logging, consistent with the Department of Agriculture's transition goal.

[8] U.S. Department of Agriculture, News Release: USDA Pursues Jobs, Community Stability While Developing New Approach to Forest Management in Southeast Alaska at 1 (May 26, 2010) (USDA Press Release 2010).

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PURPOSE AND NEED

The DEIS defines the Wrangell Island Project purpose and need too narrowly, because it focuses too much on large-scale old-growth logging objectives.[9] According to the DEIS, "[t]he purpose of the Wrangell Island Project is to respond to the goals and objectives identified by the 2008 Tongass Land and Resource Management Plan . . . to guide timber management to support the local and regional economies of Southeast Alaska, while moving the Wrangell Island Project area towards the desired future condition for all resources."[10] The DEIS further contends that "[t]his project would contribute to the orderly flow of timber to large and small timber purchasers, mill operators, and value-added wood product industries in Southeast Alaska and benefit the local and regional economies of Wrangell and Southeast Alaska while also improving forest resource conditions."[11]

The purpose and need statement identifies two goals and three objectives that relate solely to timber industry needs.[12] The local and regional economy goal and objective purportedly relate to diverse resource uses and employment, but in reality the Forest Service seems to treat it as solely timber-driven.[13] As the planning record makes clear, the Forest Service appears to have predetermined its mission as providing maximum old-growth volume.

The purpose and need statement also does not reflect the reality of Southeast Alaska's economy or the goal of transitioning away from the controversy and conflict of old-growth logging. As explained above, the region has moved beyond massive old-growth logging as the primary economic driver. By applying the purpose and need statement for this project so narrowly, the agency actually works against the economic interests of Southeast Alaskans. The economic drivers of the Southeast economy depend upon intact, old-growth forests: fishing, tourism, and recreation. The agency should be developing projects that support those industries and, in so doing, facilitate the transition away from environmentally and economically unsustainable industrial-scale old-growth logging. The final environmental impact statement for the Wrangell Island Project (FEIS) should adjust the purpose and need to reflect appropriately the agency's multiple use obligations.

RANGE OF ALTERNATIVES

Under the National Environmental Policy Act (NEPA), the agency is required to develop alternatives that would "inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human

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[9] *See Nat'l Parks & Conservation Ass'n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1070 (9th Cir. 2010) ("an agency cannot define its objectives in unreasonably narrow terms") (quoting *City of Carmel–By–The–Sea v. United States Dep't. of Transp.*, 123 F.3d 1142, 1155 (9th Cir.1997)).

[10] DEIS at v.

[11] *Id*.

[12] *Id*. at 4.

[13] *Id*.

environment."[14] The DEIS does not comply with NEPA's directive to "[r]igorously explore and objectively evaluate all reasonable alternatives."[15] The courts have made it clear: "The agency must look at every reasonable alternative within the range dictated by the nature and scope of the proposal. The existence of reasonable but unexamined alternatives renders an EIS inadequate."[16]

During the scoping process, groups requested that the Forest Service significantly downsize the timber sale volume of the Wrangell Island Project or cancel the timber component altogether, explaining that the proposed volume was excessive, did not reflect a reasonable assessment of demand for timber, and would result in negatively appraised projects. Instead, they encouraged the Forest Service to review small-volume alternatives that addressed the needs of small-scale timber operators.

Southeast Alaska Conservation Council (SEACC), for example, proposed a "Small Mill & Wildlife Alternative" that contemplated 2 MMBF per year over ten years.[17] In its letter, SEACC also questioned the economic viability of the Wrangell Island Project given the sole focus on large-volume alternatives:

> The 2009 [Map Committee] analysis found that the original Wrangell Island sale volume of 150-200 MMBF appraised at negative fifty-nine dollars per thousand board feet (-$59/MBF), and only 30 MMBF appraised positive.
>
> . . .
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> Proposing large volume sales with small amounts of economical timber will not provide long-term support to small mill operators on Wrangell Island. Over the past decade, 50% of timber sales on the Tongass were not bid on at all, and of the timber that did sell, 40% was either defaulted on by the operator or mutually cancelled.[18]

Similarly, other groups asked the Forest Service to downsize significantly the timber component of the project:

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[14] 40 C.F.R. § 1502.1 (binding NEPA regulations provide that an EIS must "inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment"); *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 965 (9th Cir. 2005).

[15] 40 C.F.R. § 1502.14(a).

[16] *'Ilio'ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1095 (9th Cir. 2006).

[17] Southeast Alaska Conservation Council, Letter to SWCA Environmental Consulting, Re. Wrangell Island Project Draft EIS (July 25, 2011).

[18] *Id*. at 2.

> We also request that you consider either fundamentally downsizing the timber sale volume or cancel planning on the timber sale component of this project. With regard to site specific and island-wide concerns, we think that the proposed volume is excessive and does not reflect a reasonable assessment of current and potential demand for timber from the project area. We would prefer to review a program that proposes to address the needs of potential small-scale timber processors. Instead, this project continues the costly program of producing big sales dependent on raw log exports. It is appropriate to substantially limit old-growth removals from Wrangell Island because of damage from past logging and road construction.[19]

Other groups also questioned the Forest Service's decision to proceed with large-volume alternatives given the negative appraisals:

> Preliminary agency planning on this project using 2007 data showed that this project would be a deficit sale with values ranging from -$37.04 to -$80.16 per MBF. 2007 appraisal rates declined considerably from 2005 to 2007. Yet planning on this sale seems to assume that the current market will improve and yield positive appraisals. In a 2009 letter from Clarence Clark of the Alaska Department of Forestry to Tongass Forest Supervisor Forrest Cole, Clark pointed out that it would require a substantial and unlikely market upswing to change these values. Is there any indication of an improving market at this time? Please provide detailed information about current appraisal rates, and provide charts that demonstrate fluctuations in appraisal rates over the past decade. If this project is contingent on a market upswing, please explain why the Forest Service disagrees with Clark's assessment.[20]

The DEIS, however, fails to acknowledge these requests and concerns. It also fails to explain why the agency refused to consider such alternatives.[21] As the planning record makes clear, the agency should have addressed these requests. In the Wrangell Island EIS Project Initiation Letter, you specifically instructed: "The [Interdisciplinary Team] should develop a range of alternatives including the No Action Alternative, the Proposed Action Alternative, and additional action alternatives that respond to the purpose and need and key issues. These should include an

[19] Tongass Conservation Society & Greenpeace, Letter to Bob Dalrymple, Wrangell District Ranger, Re. Wrangell Island Project EIS at 2 (Jan. 26, 2011).

[20] *Id.* at 22 (internal footnotes and citations omitted); *see also* Clark, C., Alaska Department of Natural Resources, Letter to Forrest Cole, U.S. Forest Service (Apr. 8, 2009).

[21] DEIS at 23-33.

alternative (s) to address public comments from the public [and] SEACC."[22] Instead, the DEIS includes only large volume action alternatives that range from 42.8 to 65 million board feet (MMBF).[23]

The Forest Service's failure to examine smaller volume sales is even more confounding because, as predicted more than seven years ago, all of the action alternatives analyzed in the DEIS result in substantially negative appraisals. The action alternatives result in indicated advertised rates for domestic processing ranging from negative $215.62 to negative $253.21.[24] Even when the agency relies on the Region 10 export policy, the expectations still result in negative indicated advertised rates across the board, ranging from negative $54.21 to negative $91.90.[25]

In sum, all of the action alternatives entail intensive, old-growth logging in a portion of the Tongass that has already experienced excessive logging and, as a result, fail to address other legal obligations to maintain sufficient habitat for old-growth dependent species and to manage the forest for multiple uses. The agency acted unlawfully when it failed to evaluate how small sale alternatives would meet the economic timber goals and objectives, and support diverse natural resource employment opportunities while minimizing adverse environmental and wildlife impacts. The FEIS must include multiple small sale alternatives or, at a minimum, explain why these alternatives were excluded from consideration despite their positive economic opportunities, reduced habitat impacts, and support for domestic operations rather than serving export markets.

ROADLESS RULE

The Wrangell Island Project does not protect roadless areas adequately or consistently with Department of Agriculture policy. It protects 2001 Inventoried Roadless Areas (IRAs) as required by the Roadless Rule. However, in connection with the 2003 forest plan amendment, the Forest Service updated and corrected errors in the 2001 inventory, and uses the updated inventory in connection with the currently applicable forest plan.[26] By relying exclusively on the older, flawed inventory, the Wrangell Island Project, as proposed in the DEIS, would allow logging to proceed in places that are actually roadless. This is unacceptable.

Since at least 2010, it has been agency policy to protect Tongass roadless areas from logging.[27] The area immediately south of the North Wrangell IRA is actually roadless, as can be seen on the

[22] DEIS PR 634_0036 (Dalrymple, R., U.S. Forest Service, Memorandum to Wrangell Island EIS Project IDT, Re. Wrangell Island EIS Project Initiation Letter at 2 (Mar. 2, 2012)).

[23] DEIS at 18-20.

[24] *Id*. at 27.

[25] *Id*.

[26] *See* U.S. Forest Service, Tongass Land and Resource Management Plan Final Environmental Impact Statement at 3-445 (Jan. 2008) (2008 Amended Forest Plan FEIS).

[27] USDA Press Release 2010 at 1 (declaring agency policy to transition "quickly away from timber harvesting in roadless areas").

map in the DEIS.[28] The current roadless area inventory recognizes that area as part of IRA 227 (North Wrangell).[29] Three of the alternatives—2, 4, and 5—propose logging in that IRA.[30] To do so would be disingenuous and inconsistent with the agency's stated purpose of protecting roadless areas from logging.

The fact that the Roadless Rule does not prohibit logging there, due to erroneous maps, is a technicality that does not excuse the agency from protecting areas it knows to be actually roadless. The Roadless Rule does not require the Forest Service to log in this area and does not prevent the agency from protecting areas that are actually roadless but misrepresented in the maps. The point of the Rule and of agency policy is to protect roadless area values, not outdated maps.

Further, it would be a simple matter, though not required to protect actual roadless areas in the Wrangell Project, to update the Roadless Rule maps for the Tongass with a short notice-and-comment rulemaking. Presumably, the agency will get around to this housekeeping matter eventually. In the meantime, it is important not to log in areas known to be roadless but mistakenly omitted from the old inventory. To do so would knowingly destroy roadless area values contrary to the purposes of the rule and preclude future protection of these areas.

The refusal to consider alternatives that protect known roadless areas in the current inventory violates NEPA. The DEIS misses the point when it refuses to consider such alternatives, stating, "[e]xcluding timber harvest from both types of roadless areas would not provide sufficient timber volume to meet the purpose and need of this project."[31] As an initial matter, this statement is untrue. As discussed in the following section addressing market demand, the DEIS greatly exaggerates the actual market demand. It would be possible to meet the purpose and need of the project with much lower timber volumes. Even if it were true, however, that protection of roadless areas in both inventories left insufficient timber to meet the purpose and need for the Wrangell Island Project, the appropriate response would be to change the purpose and need to bring it in line with agency policy.

MARKET DEMAND

In the DEIS, the Forest Service arbitrarily fails to consider both recent real-world harvest data and the Forest Service's own updated market demand projections when setting the timber program goals that form the basis for the Wrangell Island Project. Instead, the DEIS uses outdated projections that overstate demand by at least a factor of three. The DEIS does so without offering any rational explanation for bypassing the updated projections and allows the outdated market projections to inappropriately constrain the range of alternatives considered. If

[28] DEIS at 59, Fig. 13.

[29] *See* 2008 Amended Forest Plan AR 603_1064 (2008 Forest Plan Map entitled "Roadless Area Inventory, Tongass National Forest, Land and Resource Management Plan, January 2008"); *see also* 2008 Amended Forest Plan FEIS at 3-446, Tbl. 3.19-2 (IRA 227).

[30] *See* DEIS at 37, Fig. 4; *id.* at 41, Fig. 6; *id.* at 43, Fig. 7.

[31] DEIS at 23-24.

the Forest Service persists in using outdated, inflated demand projections to justify the Wrangell Island Project, it will violate the statutes that require the agency to balance timber objectives with other forest values. For the reasons explained below, failure to correct these errors will violate NEPA, the Administrative Procedure Act (APA), and the National Forest Management Act (NFMA) and the other statutes under which the Forest Service operates when it approves a timber sale project.[32]

I. EXAGGERATING MARKET DEMAND FOR TIMBER INAPPROPRIATELY DEVALUES COMPETING FOREST RESOURCES IN THE DECISION-MAKING PROCESS.

The Forest Service's aim to satisfy market demand for Tongass timber motivates the Wrangell Island Project's proposed logging components.[33] The statutes under which the Forest Service operates require the agency to balance timber objectives with other forest values such as wildlife, recreation, and subsistence.[34] Therefore, if the Forest Service relies on estimates of demand that are greatly exaggerated, it may seek too large a sale, giving logging goals "precedence over the competing environmental and recreational goals without justification sufficient to support the agency's balancing of these goals."[35] Because demand influenced the proposed location of the Wrangell Island Project[36] that too may be unsupportable if the Forest Service uses inaccurate demand projections.

II. REAL-WORLD CONDITIONS AND THE FOREST SERVICE'S OWN UPDATED RESEARCH SHOW ACTUAL MARKET DEMAND IS DRAMATICALLY LESS THAN DEPICTED IN THE DEIS.

In planning the Wrangell Island Project, the Forest Service relies on outdated projections of market demand which anticipate approximately three times the demand that updated Forest Service research and recent history suggest will occur. In particular, the Forest Service relies on a ten-year-old study that was published by its Pacific Northwest Research Station before the Great Recession and associated housing collapse gutted demand for Tongass timber (Brackley

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[32] *See* 16 U.S.C. § 1604(e) (NFMA); *id*. § 529 (Multiple-Use Sustained-Yield Act); *id*. § 539d(a) (Tongass Timber Reform Act); *id*. § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act); *see also Natural Res. Def. Council*, 421 F.3d at 808-09 (explaining balancing of timber and other goals in the Tongass).

[33] *See* DEIS at v ("[T]he Forest Service's obligation . . . to seek to provide a supply of timber from the Tongass National Forest that meets market demand annually and for the planning cycle" is an "underlying need for the Wrangell Island Project."); *id.* at 4.

[34] *See* 16 U.S.C. § 1604(e) (NFMA); *id.* § 529 (Multiple-Use Sustained-Yield Act); *id.* §539d(a) (Tongass Timber Reform Act); *id.* § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act); *see also Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 808-09 (9th Cir. 2005) (explaining balancing of timber and other goals in the Tongass).

[35] *Nat. Res. Def. Council*, 421 F.3d at 808.

[36] DEIS, App. A at 274.

Report).[37] Of the three scenarios for which the Brackley Report projects demand, the DEIS states that Scenario 2, "Expanded Lumber," is most similar to the current market trajectory.[38]

In April 2016, and prior to the release of the DEIS, the Pacific Northwest Research Station published updated timber demand projections for years 2015-2030 (Daniels Report).[39] The DEIS mentions but does not incorporate or rely on the new projections.[40] According to the Daniels Report, a new analysis was not just desirable but required because changing conditions have rendered "many" of the Brackley Report's assumptions invalid.[41] Although the Daniels Report is flawed and likely still overestimates demand,[42] its projections are dramatically lower than those in the pre-recession Brackley Report, especially when compared to the Expanded Lumber scenario the DEIS relies on. The 2006 Brackley Report's Expanded Lumber scenario projects approximately three times the demand that the 2016 Daniels Report forecasts *in any scenario*.

[37] DEIS, App. A at 279 ("Planning for the Wrangell Island Project occurred under the 2008 Forest Plan and uses those demand assumptions . . . ."); *id.* at 278 (identifying the Brackley Report and its 2008 addendum as the sources for market demand projections in the 2008 Amended Forest Plan); *id.* at 279, Tbl. 98 & n.1 (showing annualized demand projections calculated from the Brackley Report); DEIS PR at 634_0498 (A. Brackley *et al.*, Timber Products Output and Timber Harvests in Alaska: Projections for 2005-25 (July 2006) (Brackley Report)). The 2008 addendum provided further explanation and clarification but did not change the Brackley Report's projections. *See generally* DEIS PR 634_0490 (A. Brackley *et al.*, Timber Products Output and Timber Harvests in Alaska: An Addendum (August 2008)).

[38] DEIS, App. A at 282.

[39] J. Daniels, *et al.*, Tongass National Forest Timber Demand: Projections for 2015 to 2030 (April 2016) (Daniels Report). A draft of the Daniels Report was available even earlier, as the DEIS notes. DEIS, App. A at 279.

[40] DEIS, App. A at 279.

[41] Daniels Report at 1.

[42] Alaska Wilderness League *et al.*, Letter to Earl Stewart, U.S. Forest Service, Re. Tongass Land Management Plan Amendment at 12-15 (Feb. 22, 2016); *see generally* E. Niemi, Socioeconomic Comments: Timber Demand (Feb. 2016).

Projected Logging (MMBF) in Daniels and Brackley Reports		
Year	Daniels Report (2016) Range, all scenarios[43]	Brackley Report (2006) Scenario 1, Expanded Lumber[44]
2016	41.6 – 41.6	122.2
2017	42.3 – 43.4	131.3
2018	43.1 – 46.3	140.3
2019	43.8 – 49.2	150.1
2020	44.5 – 52.1	163
2025	44 – 63	230.9
2030	46.4 – 76.4	N/A

Aside from the Daniels Report's explicit statement that the Brackley Report projections are based on outdated, invalid assumptions, real-world logging figures have demonstrated for years that the Brackley Projections are no longer realistic. Over the past decade, actual logging in any given year has been approximately one-fourth to one-half of the Brackley Report's Expanded Lumber projections.[45]

III. ANY EXAGGERATION OF DEMAND IS AMPLIFIED FURTHER IN THE FOREST SERVICE'S DECISION-MAKING PROCESS.

Projected demand is only the starting point from which the Forest Service calculates the two timber program goals that guide its decision-making. Those goals each incorporate a substantial buffer or margin of error to reduce the chance that in any given year, actual demand will exceed available timber. Thus, if the market demand projections used in these calculations are already two to three times larger than is realistic, those grossly inflated figures will be further padded and then multiplied so that the final goals for the timber program vastly overstate the need for timber.

The market demand projection the Forest Service chooses to credit is first padded using a formula that is part of what is called the Morse methodology. The purpose of the Morse methodology is to set a goal for the amount of timber to be offered in a given year based on the projected demand and adjusted to account for a large set of variables that affect whether supply will ultimately be sufficient to meet demand—in other words, to account for uncertainty. In fiscal year 2014, for example, the Brackley Report Expanded Lumber demand projection was for

[43] Daniels Report at 34, Tbl. 12; *id* at 37, Tbl. 15; *id.* at 43, Tbl. 19; *id.* at 47, Tbl. 22.

[44] DEIS, App. A at 279, Tbl. 98 & n.1.

[45] *Compare* DEIS, App. A at 276, Fig. 32 *with id.* at 279, Tbl. 98 ("Scenario 2, Expanded Lumber" column).

105.6 MMBF.[46] The resulting volume offered goal was 142 MMBF.[47]

As a next step in the Morse methodology, the volume offered goal is tripled to obtain a goal for the total volume of timer under contract ("volume under contract" goal).[48] The purpose of aiming to place a three-year supply of volume under contract, rather than just seeking to meet demand year-to-year, is to allow the industry flexibility to adapt to further uncertainties such as market fluctuations and weather conditions.[49] For fiscal year 2014, for example, the volume under contract goal was 426 MMBF.[50] In fact, only 39.1 MMBF were logged that year, less than one-tenth of the volume under contract goal.[51] The example demonstrates how the initial overestimate of demand (105.6 MMBF) was further amplified through the Morse methodology so that the timber program goals were grossly disproportionate to actual demand.

The Wrangell Island Project has been planned as a means of meeting the volume under contract goal that was calculated using the market demand projections from the outdated Brackley Report's Expanded Lumber scenario.[52] Because the Morse methodology and volume under contract approach are designed to ensure that available timber does not fall short of demand, using as its starting point these demand projections that the Forest Service's own research shows are overstated by a factor of three undeniably gives timber "precedence over the competing environmental and recreational goals without justification sufficient to support the agency's balancing of these goals."[53]

IV. THE FOREST SERVICE CANNOT IGNORE REAL-WORLD CONDITIONS OR ITS OWN UPDATED RESEARCH.

The DEIS offers only two reasons for relying on the Brackley Report rather than the updated Daniels Report projections or some other, more realistic estimate. First, the DEIS states that "[p]lanning for the Wrangell Island Project occurred under the 2008 Forest Plan and uses [the Brackley Report] demand assumptions."[54] Second, the DEIS states that "all data and analysis [in

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[46] DEIS, App. A at 279, Tbl. 98.

[47] DEIS, App. A at 282; *see also* DEIS PR 634_0488 at 2 (U.S. Forest Service, Briefing Paper: Estimating the Range of Expected Tongass Timber Purchase And Sale Offer (Feb. 2014) (2014 Forest Service Briefing Paper) (showing rounded projected demand, or harvest, of 106 MMBF at line K, Expanded Lumber; showing resulting volume offered goal of 142 MMBF at line Q, Expanded Lumber).

[48] DEIS, App. A at 285-86.

[49] *Id.*

[50] *Id*. at 286, Tbl. 100.

[51] *Id*. at 276, Fig. 32.

[52] *See* DEIS at 4.

[53] *Nat. Res. Def. Council*, 421 F.3d at 808.

[54] DEIS, App. A at 279.

the Daniels Report] remains in draft form until the manuscript is published."[55] Neither is a valid reason to persist in using the Brackley Report's invalid projections.

It is no answer that the Wrangell Island Project was planned using the 2008 Amended Forest Plan for which the Brackley Report was created. The 2008 Plan neither requires reliance on the Brackley Report nor prohibits the Forest Service from using its most up-to-date projections. To the contrary, the FEIS for the 2008 Plan explicitly recognizes the dynamic nature of the timber market and the need to reassess timber program goals over time.[56] "Since the method was initially developed by Morse (2000), inputs to the model have been adjusted to reflect new understandings and information, such as share of raw material provided by the Tongass National Forest to local processors, the amount of time between purchase and harvest of a timber sale, and mill capacity. In this way, the approach has allowed for adaptations to current situations."[57] The 2008 Amended Forest Plan makes no mention of the Brackley Report, but states, "Estimates of annual timber demand are based on a number of factors, including *Pacific Northwest projections*, installed mill capacity, utilization rates and market trends."[58] Since the Pacific Northwest Research Station has now updated its projections with the Daniels Report, the Plan requires the Forest Service to take that factor into account. That the Daniels Report was prepared in connection with the 2015 Forest Plan amendment is not relevant.[59] Whatever motivated the report originally, it is now the Forest Service's most up-to-date prediction of market demand, and it contradicts the Brackley Report.

The fact that the Daniels Report was in draft form during part of the Forest Service's preparation of the DEIS does not excuse its omission. It was published in final form before the DEIS was released. Even if it had not yet been published, agencies are free to use—but not free to ignore—draft studies in NEPA analyses.[60] The DEIS offers no reason to doubt the validity of the "draft form" data and analysis. Indeed, the demand projections in the draft Daniels Report that is in the planning record remain unchanged in the final version that was published in April 2016.

Finally, if the DEIS aims to evade the Daniels Report by using only the market demand projections for fiscal year 2014, a prior year not covered by the Daniels Report, the attempt must

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[55] *Id.*

[56] *See* 2008 Amended Forest Plan FEIS at G-1 to G-2.

[57] *Id.* at G-2.

[58] U.S. Forest Service, Tongass National Forest Land and Resource Management Plan at 7-2 (Jan. 2008) (2008 Amended Forest Plan) (emphasis added).

[59] DEIS, App. A at 279.

[60] *See Earth Island Inst. v. U.S. Forest Serv.*, 442 F.3d 1147, 1172 (9th Cir. 2006) *abrogated on other grounds by Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7 (2008) (the agency "cannot assume that simply because . . . studies are preliminary" their substance is irrelevant).

fail.[61] The Forest Service is required to seek to meet current market demand, not demand for past years.[62] The DEIS offers no reason that the demand projection for the year 2014, which is already proven a gross exaggeration as a matter of historical fact,[63] is likely to be accurate in the coming years. That the Daniels Report offers no competing projection (because it was published in 2016) does not make the Brackley Report projection for 2014 reliable or appropriate.

V. TO PERSIST IN RELYING ON THE BRACKLEY REPORT DEMAND PROJECTIONS IN THE FEIS WOULD VIOLATE NEPA AND THE APA.

If the Forest Service continues to rely on the Brackley projections in the FEIS as it has in the DEIS, the agency will run afoul of NEPA in four ways. First, the choice will represent a failure to use the requisite "high quality" information in its analysis, especially on an issue as central to the Wrangell Island Project as market demand.[64] Second, by failing to acknowledge that the Brackley Report projections are unrealistically high because they are based on invalidated assumptions, the analysis will present a highly misleading picture of timber needs and the resulting trade-offs with wildlife. "Presenting accurate market demand information [i]s necessary to ensure a well-informed and reasoned decision, both of which are procedural requirements under NEPA."[65] Third, setting artificially high timber program goals will have constrained the range of alternatives considered, and in particular preclude the analysis of much smaller volume sales that would still satisfy realistic estimates of demand. Fourth, if, like the DEIS, the FEIS fails to provide a non-arbitrary reason to prefer the Brackley Report projections over the Daniels Report, the Forest Service will have failed to respond to a responsible opposing point of view on market demand—in this case, the agency's own contemporary, published viewpoint.[66]

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[61] The DEIS appears to focus on the Brackley Report projection for fiscal year 2014. DEIS, App. A at 282 (explaining that the Forest Service is using the projections for the Brackley Report's "Expanded Lumber" scenario); *id.* (citing 142 MMBF as the 2014 volume-offered goal, which is not the same as the figure for projected market demand but as explained *supra* is derived from it); *id.* at 279, Tbl. 98 (showing 105.6 MMBF as the 2014 projection for the Expanded Lumber scenario); 2014 Forest Service Briefing Paper at 2 (showing rounded projected demand, or harvest, of 106 MMBF at line K, Expanded Lumber; showing resulting volume-offered goal of 142 MMBF at line Q, Expanded Lumber).

[62] DEIS, App. A at 289.

[63] *Id.* at 276, Fig. 32 (showing only 39.1 MMBF were harvested in 2014).

[64] 40 C.F.R. § 1500.1(b); *see also Lands Council v. Powell*, 395 F.3d 1019, 1031 (9th Cir. 2005) (while not all data the agency relies on must be "immediate," the question of whether data is too outdated is more important when the agency assigns significant weight to the data); *Idaho Conservation League v. Bennett*, No. CV 04-447-S-MHW, 2005 WL 1041396, at *9 (D. Idaho Apr. 29, 2005) (failure to gather up to date data on a central issue violates NEPA's high quality information requirement).

[65] *Nat. Res. Def. Council*, 421 F.3d at 812.

[66] 40 C.F.R. § 1502.9(b).

Continuing to rely on the Brackley Report projections in the FEIS without a better explanation will also violate the APA. The substantial gap between the Brackley Report logging projections and both real-world experience and the subsequent Daniels Report projections is a "relevant factor" and "an important aspect of the problem," rendering the agency's failure to explain it arbitrary.[67]

In sum, the DEIS offers no non-arbitrary reason to persist in using the Brackley Report's invalid market demand assumptions to plan the Wrangell Island Project when the Forest Service has already prepared higher quality projections that track recent logging more realistically. Continuing to use these invalid projections to justify the Wrangell Island Project will violate the statutes that require the Forest Service to balance timber objectives with other forest values.[68] Doing so without offering any rational explanation and allowing these projections to constrain its analysis will violate NEPA and the APA. The FEIS must adopt more realistic projections of market demand.

TIMBER ECONOMICS

I. THE DEIS FAILS TO PROVIDE A CLEAR ASSESSMENT OF THE COSTS AND BENEFITS OF THE WRANGELL ISLAND PROJECT.

The DEIS fails to provide a Forest Service Financial Efficiency Analysis as required by FSH 2409.18, which compares Forest Service direct expenditures with estimated financial revenues.[69] The DEIS omits this entire discussion.[70] Instead the DEIS relegates the discussion—including

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[67] *Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 42-43 (1983); *see also Nat'l Parks Conservation Ass'n v. U.S. EPA*, 788 F.3d 1134, 1146 (9th Cir. 2015) ("[I]f … the model is challenged, the agency must provide a full analytical defense." (alteration in original) (quoting *Eagle-Picher Indus., Inc. v. EPA*, 759 F.2d 905, 922 (D.C. Cir. 1985))); *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1054 (D.C. Cir. 2001) (holding application of model arbitrary where agency had not "addressed what appear to be stark disparities between its projections and real world observations"); *Columbia Falls Aluminum Co. v. U.S. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998) (holding a rule arbitrary where the agency "knows that 'key assumptions' underlying the [testing procedure] are wrong"); *Mont. Sulphur & Chem. Co. v. U.S. EPA*, 666 F.3d 1174, 1185 (9th Cir. 2012) (reliance on model is arbitrary if agency "ignored reliable data that so undermined the [agency] model projections . . . that reliance on the model was irrational" (second alteration in original) (quoting *N. Plains Res. Council v. U.S. EPA*, 645 F.2d 1349, 1362-63 (9th Cir. 1981)); *Nat. Res. Def. Council v. Jackson*, 650 F.3d 662, 666 (7th Cir. 2011) ("At some point, preferring predictions over facts is no longer rational.").

[68] *See* 16 U.S.C. § 1604(e) (NFMA); *id.* § 529 (Multiple-Use Sustained-Yield Act); *id.* §539d(a) (Tongass Timber Reform Act); *id.* § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act).

[69] *See* U.S. Forest Service, Big Thorne Project Final Environmental Impact Statement at 3-36 to 3-43 (June 2013) (Big Thorne FEIS).

[70] DEIS at 62-66.

all indications of what the project will cost taxpayers—to a draft document in the planning record. Even that document fails to reveal the Wrangell Island Project's substantial negative net value, but more importantly to discuss the significance of the project's economic inefficiency to the decision-making process. Failing to disclose this analysis in the DEIS is misleading and impermissible. The Forest Service justifies the Wrangell Island Project (and the entire Tongass timber sale program) exclusively on the grounds of purported economic benefits, but the Forest Service fails to disclose to the public and the decision-maker the true cost of its timber sale program.

The required Financial Efficiency Analysis would compare the revenue from the project with Forest Service expenditures (i.e., costs to the taxpayer) expected to result.[71] In this analysis, FSH 2409.18_32.22 directs the Forest Service to "[i]nclude *all costs* that are anticipated as a result of the project," such as but not limited to "direct costs associated with . . . [h]arvest administration . . . [s]ale preparation . . . [and] [r]oad design and engineering."[72] The Big Thorne FEIS, for example, disclosed that Alternative 3 will cost taxpayers $6 million plus undisclosed NEPA costs.[73] The Big Thorne FEIS also reported that NEPA costs are estimated at $48/MBF,[74] resulting in an estimated NEPA cost of $7.1 million for the selected alternative (148,900 MBF multiplied by $48/MBF). Thus, making calculations from the numbers reported in the Big Thorne FEIS, it would appear that the total estimated cost of the Big Thorne project to taxpayers would be $13.1 million.

Here, the DEIS itself discloses *only* revenues, and not even as the total revenue for each alternative but only as an abstract "per MBF" figure. It omits any mention of the Forest Service's expenditures resulting from each alternative, including the costs of sale administration, sale preparation, and road design and engineering that the Forest Service Handbook requires.[75] These expenditures appear only in a document in the planning record called the Timber Economics Draft Resource Report, which contains calculations of both total revenue and total Forest Service costs for each alternative.[76] From the Timber Economics Draft Resource Report, it is possible to replicate the type of net value calculation disclosed in the Big Thorne FEIS.[77] The results show that by the Forest Service's own estimate the proposed alternative's cost to taxpayers, net of revenues, is $6.5 million (indicated advertised value of -$3.3 million minus $3.2 million total project costs), plus undisclosed NEPA costs.[78] Also by the Forest Service's

[71] U.S. Forest Service, Forest Service Handbook, FSH 2409.18 – Timber Sale Preparation Handbook, Chp. 30 at 2409.18_32.11 (Jan. 31, 2002) (FSH 2409.18).

[72] FSH 2409.18_32.22 (emphasis added).

[73] Big Thorne FEIS at 3-37, Tbl. TSE-14.

[74] *Id.*

[75] FSH 2409.18_32.22.

[76] DEIS PR 634_1109 at 14, Tbl. 6 & 17, Tbl 8 (N. Stearns, Wrangell Island Project DRAFT Resource Report: Timber Economics (Jan. 2106)).

[77] *Compare id. with* Big Thorne FEIS, Tbl. TSE-14 at 3-37.

[78] Timber Economics Draft Resource Report at 14, Tbl 6 & 17, Tbl 8.

estimate, NEPA costs of $48/MBF would amount to an additional $3.1 million (65,000 MBF multiplied by $48/MBF), for a total of $9.6 million in costs to taxpayers for the Wrangell Island Project. None of those estimates of net value are disclosed in the DEIS; not even to the extent they were disclosed in the Big Thorne FEIS.[79] As a result, the DEIS presents a highly one-sided, misleading picture of the alternatives' economic efficiency.

In truth, even total taxpayer costs of $13.1 million (Big Thorne) and $9.6 million (Wrangell Island Project) are likely gross underestimates for these sales. They are derived from a Forest Service calculation done by Robert Vermillion in December 2012 that the cost of preparing timber on the Tongass is $104/MBF including NEPA costs.[80] The Forest Service has never disclosed the data underlying the Vermillion calculation.[81] Nor does the record here explain why the four-year-old estimate is still relevant or reliable.[82] Even for 2012, it is not at all clear that the Vermillion calculation incorporates all of the costs that FSH 2409.18_32.22 explicitly instructs the Forest Service to include. There is no indication that the Vermillion calculation includes costs of brush disposal, road maintenance, reforestation, or regenerated stand management, such as silvicultural exams, stand improvement, and timber and transportation planning.[83]

Aside from the opaque Vermillion calculation, the only available evidence in these administrative records suggests that the actual cost of Tongass timber sales is at least ten times that high. The actual cost of the timber sale program has 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 through 2012 (the same time period used by the Forest Service for its calculation[84]), the Forest

[79] *Compare* DEIS at 62-66 *with* Big Thorne FEIS at 3-37, Tbl. TSE-14.

[80] *See* Big Thorne FEIS at 3-37, Tbl. TSE-14 n.1 at 3-37 (citing Vermillion 2012 for rounded cost figures); Timber Economics Draft Resource Report at 16 (using the same figures for average Forest Service costs per MMBF); R. Vermillion, Estimating Costs of the Tongass Timber Program (Vermillion 2012); DEIS PR 634_0494 (same).

[81] *See generally* Vermillion 2012 (providing only the results of the calculation and a list of broad categories that were excluded from the calculation, with no detailed accounting of what was actually included).

[82] *See* Timber Economics Draft Resource Report (failing to attribute the cost calculations to Vermillion 2012, much less explain why the estimate is still accurate).

[83] *See generally* Vermillion 2012; Timber Economics Draft Resource Report; FSH 2409.18_32.22(1)(g), (h); *see also* DEIS at 219 (explaining that NFMA requires reforestation within five growing seasons of logging).

[84] *See* Vermillion 2012.

Service spent from $34.2 million to $47.7 million annually on the timber sale program,[85] with an average expenditure of $42.5 million per year. *See* Table 1.[86] 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.

[85] *See* Cascadia Wildlands *et al.*, Comments on Big Thorne Project (BTP), Exhibit 2b (Tab "Net Losses"). Mehrkens produced his entire spreadsheets, revealing the exact numbers he used to make his calculations, *id.*, and explained exactly how he did it in a detailed declaration. *See* Declaration of Joseph R. Mehrkens, *In re. Appeal of the Tongass National Forest Revised Land and Resource Management Plan (Plan Amendment), Final Environmental Impact Statement, and Record of Decision For this Revised Land and Resource Management Plan, Tongass National Forest, Alaska* (May 14, 2008). 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).

[86] The sources in Table 1 refer to Cascadia Wildlands *et al.*, Comments on Big Thorne Project (BTP), Exhibit 2b (Tab "Net Losses"), U.S. Forest Service, State of the Tongass National Forest – FY 2012 (Apr. 2013), and the Big Thorne FEIS. These sources are attached to this comment letter.

Thus, the actual cost of producing timber appears to be more than 13 times higher than the $104 asserted by the Forest Service for the same three fiscal years.

In short, while the Forest Service fails to disclose any of its costs in a Financial Efficiency Analysis in the DEIS, and fails to disclose the data underlying the cost estimates in the planning record, Mehrkens has provided a detailed, fully supported accounting, upheld in court as a reliable source. To respond only that Mehrkens was over-inclusive in estimating the costs of the timber program would be inadequate so long as the Forest Service refuses to disclose the data underlying its own cost estimate—the Vermillion calculation—and fails to explain why the total timber sale program costs are so much higher than implied by the Vermillion calculation.[87]

The Forest Service itself has said "[f]inancial efficiency . . . [is] one tool decision-makers can use to gain information about resources, alternatives, and trade-offs between costs and benefits."[88] The agency must conduct this analysis for the Wrangell Island Project to comply with NFMA and must disclose it in the FEIS to comply with NEPA. The economic analysis associated with the Wrangell Island Project is fundamental to the Forest Supervisor's decision. The entire purpose and need for the project is economic: The timber sale is justified solely on the ground that it will ostensibly produce economic opportunity for Southeast Alaska residents.[89] Thus, the public costs are critical to the agency's 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. Failing to provide accurate information on costs and benefits skews this

[87] *See, e.g.*, *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1150 (9th Cir. 1998), *as amended on denial of reh'g* (May 13, 1998), *overruled on other grounds by The Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) ("NEPA requires that the public receive the underlying . . . data from which a Forest Service expert derived her opinion."); *N. Carolina Wildlife Fed'n v. N. Carolina Dep't of Transp.*, 677 F.3d 596, 605 (4th Cir. 2012) (agency violated NEPA in part by relying on data whose underlying assumptions had not been disclosed to the public); 40 C.F.R. § 1502.24 ("Agencies . . . shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement."); *Nat'l Parks Conservation Ass'n v. U.S. E.P.A.*, 788 F.3d 1134, 1146 (9th Cir. 2015) ("[I]f . . . the model is challenged, the agency must provide a full analytical defense." (alteration in original) (quoting *Eagle-Pitcher Indus., Inc. v. EPA*, 759 F.2d 905, 922 (D.C. Cir. 1985))); *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1054 (D.C. Cir. 2001) (where agency failed to adequately explain why it relied on one set of figures over another, explaining "it will not do for a court to be compelled to guess at the theory underlying the agency's action" (quoting *Am. Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998))).

[88] Big Thorne FEIS at 3-37.

[89] *See, e.g.*, DEIS at 4-5.

analysis.[90] Additionally, the Forest Service's NFMA obligations require the agency to consider these costs and benefits in deciding whether and how to proceed with this project given the adverse impacts to old-growth ecosystems, wildlife, fisheries, subsistence, and forest-dependent industries, such as fishing, tourism, and recreation.[91]

II. THE DEIS FAILS TO ACCOUNT FOR HIGHGRADING THE MOST VALUABLE AND LARGEST TREES.

One possible, if not likely, outcome of the dire economic reality of the Wrangell Island Project is that the Forest Service will offer timber sales that highgrade the available volume to meet requirements for positive economic appraisals. The DEIS fails to address this damaging practice.

High grading refers to the practice of logging only those trees that will give the highest immediate economic return, resulting in a decline in long-term forest health and productivity. Experts have explained:

> It can also occur at a larger spatial scale, in which the most productive stands of trees are clear-cut, and nearby stands of low productivity are retained, or conserved. While high-grading maximizes profit, the selective removal of certain forest types threatens ecological functioning over large areas (Albert and Schoen 2007, Albert and Schoen in review, Lertzman and McKinnon in press, DellaSala et al. 2011b). The effects of high-grading are especially severe for wildlife species with specialized habitat requirements associated with these preferred stand types, or those that rely on the mix of different forest types, including highly productive stands, to meet their annual life history requirements (e.g., Schoen et al. 1988, Schoen and Kirchhoff 1990).[92]

For example, Sitka black-tailed deer rely on the "rare large-tree stands during severe winters to escape deep snow," and "heavy mortality could be expected" if those stands are logged.[93]

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[90] *Nat. Res. Defense Council*, 421 F.3d at 811 ("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." (*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))).

[91] *See Nat. Resources Defense Council*, 421 F.3d at 811.

[92] Myers, E. F, N. J. Walker, M. D. Kirchhoff, and J. W. Schoen 2011. Highgrading on the Tongass National Forest: Implications of Pending Land Selections on Forest Diversity at 3. Unpublished report. Audubon Alaska, Anchorage, AK 99501. 22 pp. (October 2011)).

[93] *Id*. at 6.

Similarly, "[t]he crevices in the bark of especially large (>100 cm diameter) old trees provide[] important habitat for arthropods, making large-tree old growth important habitat for birds like Brown Creeper (*Certhia americana*) (Kissling 2008, USFWS 2010)."[94]

Despite these concerns, the DEIS fails to even mention the concept. Removing the most valuable trees and leaving areas with poor quality trees results in differential impacts that the agency has not address. The FEIS must address the adverse impacts associated with highgrading, especially given the dire economic reality of the Wrangell Island Project.

III. THE DEIS FAILS TO ADDRESS THE IMPLICATIONS OF THE EXPORT POLICY.

Since 2007, the Regional Forester has annually re-adopted a Limited Export Policy, allowing 50 percent of spruce and hemlock sawlog volume to be shipped out of Southeast Alaska as round logs with no local processing.[95] The Forest Service's decision to adopt this policy has direct environment effects because it increases the volume of logging on the Tongass, thereby increasing adverse environmental impacts, while decreasing the number of jobs created per unit of timber cut. The Limited Export Policy has, however, never been subject to NEPA review or public notice, review and comment pursuant to the Administrative Procedure Act (APA).

In March 2016, groups wrote Regional Forester Beth Pendleton to ask that the Forest Service prepare an environmental impact statement (EIS) and provide public notice and opportunity for comment before adopting a Tongass Limited Export Policy for 2016 or beyond.[96] Since then, the agency released the DEIS for the Wrangell Island Project, which references the "Current Export Policy,"[97] but it does not appear the Forest Service has adopted any export policy for 2016. The annual review for 2015 is included in the planning record.[98]

As explained below, the DEIS fails to disclose and analyze the Limited Export Policy's significant environmental and economic impacts in application to the Wrangell Island Project. If the agency has adopted the Limited Export Policy and plans to apply it to this project, then the FEIS must correct these deficiencies. The agency's decision to adopt the Limited Export Policy and apply it to the Wrangell Island Project also raises serious concerns under NFMA and the other statutes under which the Forest Service operates when it approves a timber sale project, as the decision directly influences the agency's ability to balance competing objectives in favor of

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[94] *Id*.

[95] Forest Plan Amendment DEIS at 3-453 to 3-454; *see also* Forest Plan Amendment FEIS at H-3 to H-5.

[96] Tom Waldo letter to Beth Pendleton (Mar. 21, 2016). The undersigned groups incorporate the March 2016 letter and its exhibits herein.

[97] *See, e.g.*, DEIS at 66.

[98] *See* DEIS PR 634_0172.

large-scale old-growth logging. These statutes require the Forest Service to balance multiple competing interests when managing the national forests.[99]

Additionally, for the reasons described below, we continue to urge the Forest Service to discontinue the Limited Export Policy. If the Forest Service does adopt the policy, then it must comply with NEPA, the APA, and its NFMA obligations.

A. The DEIS Fails to Address the Impacts of, and the Reasonable Alternatives to, the Limited Export Policy With Regard to the Wrangell Island Project.

Applicable law restricted the export of unprocessed timber cut on the Tongass, and simultaneously limited the advertisement of timber sales to those that would appraise positively. Under Federal statute, timber cut from National Forest land "may be exported from the State or Territory where grown if, in the judgment of the Secretary of the department administering the national forests, or the public lands in Alaska, the supply of timber for local use will not be endangered thereby."[100] The statute authorizes agencies to promulgate regulations to this effect.[101] Under Forest Service regulations, "[u]nprocessed timber from National Forest System lands in Alaska may not be exported from the United States or shipped to other States without prior approval of the Regional Forester."[102] The rationale for this regulation is that a restriction on extra-Alaskan export is necessary to provide a volume of timber to sustain "adequate wood processing capacity in Alaska" such that timber from the National Forests in Alaska can be sustained.[103] In 2003, Congress passed a Consolidated Appropriations Resolution providing in relevant part that "[n]o timber sale in Region 10 shall be advertised if the indicated rate is deficit when appraised using a residual value approach."[104] This provision has remained in Congress's subsequent appropriations legislation.[105]

In March 2007, in response to the falling number of Tongass timber sales, Regional Forester Dennis Bschor partially authorized the export of unprocessed Tongass logs through the Limited Export Policy. Specifically, the Regional Forester authorized export of 50 per cent of Sitka spruce and western hemlock sawlogs under 15-inches in diameter at the small end of a 40-foot

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[99] *See* 16 U.S.C. § 1604(e) (NFMA); *id*. § 529 (Multiple-Use Sustained-Yield Act); *id*. § 539d(a) (Tongass Timber Reform Act); *id*. § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act); *see also Natural Res. Def. Council*, 421 F.3d at 808-09 (explaining balancing of timber and other goals in the Tongass).

[100] 16 U.S.C. § 616.

[101] *Id.*

[102] 36 C.F.R. § 223.201.

[103] *Id.*

[104] Pub. L. No. 108-7, § 318, 117 Stat. 11, 273 (2003).

[105] *See* 2016 Amended Forest Plan DEIS at 3-481; 2016 Amended Forest Plan FEIS at H-2 to H-3; Big Thorne FEIS at 3-32.

log and grade 3 or 4 logs of any diameter.[106] In so authorizing, the Regional Forester incorporated the findings of Randy Coleman, Group Leader of Policy Analysis and Economics, and Dan Castillo, Director of Forest Management, that "Forest Service appraisals of proposed Tongass timber sales would rise if they assumed that a portion of the unprocessed spruce and hemlock logs were shipped to lower 48 markets."[107]

The Limited Export Policy is reviewed annually by the Regional Forester and has evolved over time. In each year since 2007, citing conditions in the domestic timber market, as well as the transitional status of Alaskan timber processors, the Regional Forester has reviewed and approved a continuation of the Limited Export Policy.[108]

The DEIS fails to explain whether the Forest Service has adopted the Limited Export Policy for 2016, but it suggests the "Current Region 10 Export Policy" has a significant, if not the most important, impact on the likelihood that various alternatives could be sold and, therefore, on the environmental impacts of the Wrangell Island Project. As explained above, the DEIS provides the differences between the "Current Region 10 Export Policy" and "Domestic Processing" for the "Indicated Advertised Rate."[109] Although all of the action alternatives appraise negatively, the Current Region 10 Export Policy results in anticipated bids that are significantly less negative than their domestic counterparts, thereby increasing the likelihood that they would be pursued. It also has a direct effect on the amount and location of logging that is likely to place, which would result in varying environmental impacts and economic impacts for Southeast Alaska. As a result, the FEIS must disclose and evaluate those impacts.

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[106] 2008 Amended Forest Plan AR 603_1064 (D.E. Bschor, Memorandum to Forest Supervisor Re: Limited Interstate Shipments of Unprocessed Sitka Spruce and Western Hemlock Timber (Mar. 14, 2007) (Bschor 2007).

[107] 2008 Amended Forest Plan AR 603_1777 (R. Coleman & D. Castillo, *Tongass Timber Appraisal Issues* (Feb. 1, 2007)) (Coleman & Castillo).

[108] *See* D. Bschor, Memorandum to Forest Supervisor Re: Time Limited Shipment of Unprocessed Hemlock and Sitka Spruce (Aug. 8, 2008) (Bschor 2008); D. Bschor, Memorandum to Forest Supervisor Re: Extension of Limited Shipment of Unprocessed Hemlock and Sitka Spruce (Nov. 10, 2009) (Bschor 2009); B. Pendleton, Memorandum to Forest Supervisor Re: Update to R10 Limited Export Policy for hemlock and Spruce (Jan. 7, 2011); B. Pendleton, Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Jan. 11, 2012); B. Pendleton, Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Feb. 20, 2013) (Pendleton 2013); B. Pendleton, Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Feb. 28, 2014); PR 769_05_000351 (B. Pendleton, Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Apr. 21, 2015)) (Pendleton 2015).

[109] DEIS at 27, 64-66.

The DEIS also errs in failing to consider alternatives in which the Limited Export Policy is not adopted and/or applied to the Wrangell Island Project.[110] Variations on the Limited Export Policy are not even included among the "Alternatives Considered But Eliminated From Detailed Review."[111] The DEIS offers no explanation why the agency did not consider these variations and the resulting differential environmental impacts. The failure to consider such alternatives violates NEPA.

By excluding variations on the Limited Export Policy, the DEIS excludes reasonable alternatives that fall within the project's "purpose and need," in violation of NEPA.[112] The DEIS describes the Wrangell Island Project as having five purposes: to provide for the continuation of timber resources by the timber industry and Alaska residents, to manage timber resources for saw timber "in an economically efficient manner[,]" to seek to provide an economic timber supply to meet annual market demand and the market demand for the planning cycle, to provide 2 to 3 years of volume under contract to local mills and then establish shelf volume, and to review the timber sale program and implement changes that keep an "economic timber" perspective throughout the process.[113] Yet, the DEIS fails to explain why domestic alternatives with smaller volumes could not fulfill these purposes.

Comparing alternatives that do and do not apply the Limited Export Policy to Wrangell Island Project would highlight important tradeoffs in impacts that are currently obscured by the agency's analysis in the DEIS. Allowing more export increases the likelihood that timber is sold from the Wrangell Island Project and the volume of timber sold, which both have corresponding adverse environmental effects and high financial costs to the public of a timber sale program that results in a loss to the treasury. Reasonable alternatives would address a range of possibilities. At one end, with no export, there would be less logging but more jobs per unit of timber logged and greater protection of wildlife, biological diversity, carbon stores, carbon sequestration, the public fisc, subsistence uses, and the recreation, tourism, and fishing sectors of the economy. At the other end is the "Current Region 10 Export Policy," which, if it is similar to its predecessors, emphasizes timber production with relatively few jobs and relatively high adverse impacts and costs on all other values. Intermediate options could also be considered. The agency must analyze these alternatives in the FEIS; to do otherwise would violate NEPA. It would also violate NFMA and the other statutes under which the Forest Service operates when it approves a

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[110] *Id*. at 17-20.

[111] *Id*. at 23-24.

[112] *City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("Project alternatives derive from an Environmental Impact Statement's 'Purpose and Need' section, which briefly defines the underlying purpose and need to which the agency is responding in proposing the alternatives . . . [and which] necessarily dictates the range of reasonable alternatives." (quotation marks omitted)); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992) (holding that failure to examine a reasonable alternative renders an EIS inadequate).

[113] DEIS at 4.

timber sale given the inherent tradeoffs and balancing the agency must make in deciding how to pursue competing objectives.

B. The Forest Service's Decision to Adopt the Limited Export Policy is Itself a Major Federal Action Requiring NEPA Review and APA Public Notice and Comment.

As groups made clear in the March 2016 letter and their comments on the DEIS for the Tongass Land Management Plan Amendment, the Regional Forester's implementation of the Region 10 Export Policy is a major federal action, because it entailed the "[a]doption of formal plans . . . upon which future agency actions will be based."[114] By the agency's own description, the adoption of the Limited Export Policy and its continued application via annual reviews are a "major development."[115] The Forest Service expects the Limited Export Policy "to boost appraised timber values,"[116] and, by its own account, but for this change in policy, far fewer timber sales "would appraise as positive."[117] A major increase in the number of sales appraising as positive—leading ultimately to more logging—was the Policy's raison d'etre.[118] As the adoption of a formal policy on which agency action would occur, the Limited Export Policy is a major federal action.

* * *

It is unclear whether the Forest Service has adopted a Limited Export Policy that is currently applicable and, if it has, what it provides. The application of that policy to the Wrangell Island Project requires analysis of the resulting adverse impacts in the FEIS. The agency must provide a "full and fair discussion of significant environmental impacts" of the decision to allow exports in the FEIS, including but not limited to resultant increases in logging and the impacts on ecosystems that will follow from the resultant logging.[119] The FEIS must include alternatives

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[114] 40 C.F.R. §§ 1508.18(b)(1)-(2); *see also* Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,033 (Mar. 23, 1981) ("[T]he adoption of official policy in the form of rules, regulations and interpretations . . . establishing governmental or agency policy which will substantially alter agency programs [entail major federal actions].").

[115] J. Daniels, et al., Tongass National Forest Timber Demand: Projections for 2015 to 2030 (April 2016) at 10.

[116] Forest Plan Amendment DEIS at 3-453.

[117] Big Thorne FEIS at 3-32.

[118] *See* Coleman & Castillo at 2-3 ("[L]imited interstate shipments would significantly increase the likelihood that timber sales in parts of the Tongass would have a positive appraisal under current market conditions. . . . [A]llowing some [international] exports of spruce and hemlock logs would have an even more powerful positive effect on appraisals").

[119] *See Conservation Cong. v. Finley*, 774 F.3d 611, 616 (9th Cir. 2014) (quoting 40 C.F.R § 1502.1).

that do not involve continuation of the Limited Export Policy to reflect the requisite NEPA analysis. Additionally, as a major federal action, the Regional Forester's adoption of the Limited Export Policy requires NEPA analysis.[120] Additionally, the agency's decision both to adopt a Limited Export Policy and to apply it to the Wrangell Island Project raises significant concerns under NFMA and the other statutes under which the Forest Service operates,[121] because allowing exports dramatically affects the size and likelihood of any logging effort and, as a result, the agency's balancing of timber objectives with other forest values such as wildlife, recreation, and subsistence.

SUBSISTENCE

Of all the terrestrial species in Southeast Alaska, deer support the highest hunting and subsistence use.[122] The DEIS acknowledges that "[t]here are no reliable population estimates for deer populations in [Game Management Unit] 3, which includes Wrangell Island."[123] It also explains that "[d]eer populations on most islands in [Game Management Unit] 3 have declined since 2004 and are thought to be well-below carrying capacity."[124] Despite these concerns, the DEIS blandly concludes that "deer would continue to persist at current levels" after the Wrangell Island Project.[125]

Yet, in describing the impacts on subsistence resources, the DEIS states that: "It is assumed that a deer population at carrying capacity should be able to support a sustainable hunter harvest (demand) of approximately 10 percent of the habitat capability while also providing a reasonably high level of hunter success in the WAA (USDA Forest Service 1997a, p. 3-674)."[126] Given that the DEIS acknowledges that this population is well below carrying capacity, it must analyze the consequences on subsistence hunter harvest given that reality.

The Forest Service recognizes that the "possibility of a restriction may already exist for deer in the long-term, and for all the alternatives."[127] The DEIS also identifies the residents of Wrangell

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[120] 42 U.S.C. § 4332(2)(C) (stating that when a federal agency undertakes "major Federal actions significantly affecting the quality of the human environment," it is required to provide a "detailed statement" analyzing the "environmental impact of the proposed action" and "alternatives to the proposed action").

[121] *See* 16 U.S.C. § 1604(e) (NFMA); *id.* § 529 (Multiple-Use Sustained-Yield Act); *id.* § 539d(a) (Tongass Timber Reform Act); *id.* § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act); *see also Natural Res. Def. Council*, 421 F.3d at 808-09 (explaining balancing of timber and other goals in the Tongass).

[122] DEIS at 79.

[123] *Id.*

[124] *Id.*

[125] *Id.* at 106.

[126] *Id.* at 237.

[127] *Id.* at 235.

and Thom's Place as those facing the most significant changes to their subsistence resources.[128] With regard to residents of Wrangell, the DEIS explains:

> ADF&G reports that in WAA 1903 (Wrangell Island), from 1996 to 2013, an average of 69 deer were harvested with the lowest number harvested in 2002 (29 deer) and highest in 2006 (105 deer). The proposed project area is located within WAA 1903, which accounted for approximately 10 percent of the annual harvest of deer for Wrangell residents between 1996 and 2001.[129]

Given the fact that deer populations are in continuing decline, the population is already below carrying capacity, and the deer habitat capability is already below the 18 deer per square mile generally considered necessary to support a sustainable relationship between wolves, deer, and human deer hunters, the FEIS must be more forthcoming about the realistic consequences on subsistence deer hunting.

CLIMATE CHANGE, CARBON STORAGE & SOCIAL COST OF CARBON

In the DEIS, the Forest Service's consideration of climate-change related environmental impacts are inadequate on several grounds. First, the DEIS fails to situate analysis of the alternatives within the context of the U.S. Government's overall commitment to prioritizing forest protection as a tool for mitigating global climate change. Second, in its assessment of climate change impacts associated with each alternative, the DEIS inexplicably excludes carbon releases that follow indirectly from the harvest of forest stands, restricting its analysis to the immediate fossil-fuel combustion emissions associated with construction and harvesting. Third, the DEIS attempts to evaluate the carbon impacts of alternatives quantitatively by comparing project-related emissions to the total size of forest stores—a comparison in itself misguided, but here rendered nonsensical by the Forest Service's refusal to estimate net emissions associated with each alternative. Fourth, the DEIS fails to account for changes in rates of sequestration and carbon storage that will result from climate change, even while it acknowledges that such changes can be expected. Finally, the DEIS fails to define the timescale over which it is analyzing climate-change related impacts.

I. THE FOREST SERVICE FAILS TO CONTEXTUALIZE ITS DECISION AS AN INSTANTIATION OF THE U.S. GOVERNMENT'S INTERNATIONAL COMMITMENT TO MITIGATE GLOBAL CLIMATE CHANGE.

The Federal Government in general and the Forest Service in particular are keenly aware of the climate-change effects of logging old-growth stands in the Tongass. As the DEIS states, "[f]orest ecosystems represent the largest terrestrial carbon sink on Earth."[130] In the United

[128] DEIS at 234.

[129] *Id*. at 236.

[130] *Id*. at 154.

States, "public forests . . . represent approximately 20 percent of the U.S. timberland area."[131] Forests sequester carbon as their trees grow, and they store this carbon within live trees and within soils.[132] Specifically, the Administration has highlighted the importance of "[c]onservation and sustainable management . . . to ensure our forests continue to remove carbon from the atmosphere while also improving soil and water quality, reducing wildfire risk, and otherwise managing forests to be more resilient in the face of climate change."[133] In general, rainforests are crucially important to the carbon cycle, but among global rainforests, northern temperate rainforests play a predominant role in rainforest carbon sequestration: "Because the tropical gross deforestation emission is mostly compensated by the [carbon] uptakes in both tropical intact and regrowth forests, the net global forest [carbon] sink [of roughly 1.1 billion metric tons of carbon per year] resides mainly in the temperate and boreal forests."[134] Northern coastal temperate rainforest biomes are "disproportionately important in regional carbon cycling."[135] Forests of the Pacific Northwest and Southeast Alaska store "exceptional levels" of carbon, and "are among the most [carbon] dense ecosystems in the world.[136] Moreover, "[t]he national forests of the Pacific Northwest Region . . . have a higher proportion of forests in old age classes (>100 years) than other ownerships,"[137] and "Southeast Alaska . . . boasts nearly a third of the world's old-growth temperate rainforest."[138] For these reasons, in other contexts the Federal Government has recognized forest policy's importance in its leadership role in global efforts to mitigate climate change.[139]

The DEIS correctly points out that the Tongass is important to the U.S. Government's policies addressing the detrimental effects of anthropogenic climate change.[140] In fact, the Tongass is

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[131] *Id.*

[132] *Id*.

[133] *See* Exec. Office of the President, The President's Climate Action Plan at 11 (June 2013).

[134] Y. Pan *et al.*, *A Large and Persistent Carbon Sink in the World's Forests*, 333 SCIENCE 988, 992 (2011) (Pan).

[135] DEIS PR at 634_0379 (D. D'Amore & R. Edwards, *Climate and Carbon in Southeast Alaska: Beyond the Threshold of Change in a Dynamic Landscape* (2014)) (D'Amore & Edwards).

[136] O. N. Krankina *et al.*, *High-Biomass Forests of the Pacific Northwest: Who Manages Them and How Much is Protected?*, 54 ENVIRONMENTAL MANAGEMENT 112, 113 (2014); A. N. Gray & T. R. Whittier, *Carbon stocks and Changes on Pacific Northwest National Forests and the Role of Disturbance, Management, and Growth*, 328 FOREST ECOLOGY & MANAGEMENT 167, 168 (2014) ("The national forests of the Pacific Northwest Region attain some of the highest [carbon] densities in the U.S.") (Gray & Whittier).

[137] Gray & Whittier at 168.

[138] D. A. DellaSala *et al*., *Temperate and Boreal Rainforests of the Pacific Coast of North America, in* TEMPERATE AND BOREAL RAINFORESTS OF THE WORLD: ECOLOGY AND CONSERVATION at 42 (D. A. DellaSala ed., 2011) (DellaSala).

[139] *See* Exec. Office of the President, The President's Climate Action Plan at 5 (June 2013).

[140] *See* DEIS at 153 ("The Forest's role in the global carbon cycle is thought to be significant").

America's most important carbon forest. It is the largest single forest-carbon sink in the United States storing over a billion tons of carbon. The DEIS estimates that the Tongass stores around 1.2 billion tons of carbon.[141] However, documents in the record suggests that the DEIS's estimate underestimates the Tongass's carbon storage by 1.6 billion tons.[142] According to one study, "[t]he Tongass National Forest stores substantially more forest carbon than any other national forest in the United States."[143] The Tongass annually removes about 2,787 pounds of atmospheric CO_2 per acre per year through growth and recruitment.[144] A 2005 study found that aboveground carbon constitutes around 30 percent of total carbon stored in the Tongass, with a conservative estimate that 66 per cent of the total was found in soils and 4 per cent in roots,[145] a distribution consistent with carbon inventories in other ecosystems.[146] The Tongass, and specifically its old growth stands should take a specially protected place within the Federal Government's efforts to address climate change.

The DEIS contemplates alternatives that would destroy old-growth forest in the Tongass, but fails contextualize decisions within a policy context in which action alternatives would contradict the commitments that the U.S. Government has made to forest protection on the international stage. In the FEIS, the Forest Service should evaluate alternatives in light of the Tongass's relative global importance as a forest carbon sink and store. It must discuss how action alternatives would release carbon stores within some of the Earth's most carbon-concentrating forest stands. The FEIS must also consider and discuss how the logging proposed in this project and its anticipated climate effects fails to match the U.S. Government's commitment to climate-change mitigation, a commitment that it has which it has repeatedly voiced, most recently in the Paris Agreement under the United Nations Framework Convention on Climate Change. If there were a keystone forest that signals the commitment of the United States to climate action, the Tongass is that forest. The FEIS must grapple with the strong negative signal action like this would have on the United States's role as a global climate leader. Without this context the true impact of the alternatives cannot be evaluated.

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[141] DEIS at 155, Tbl. 57.

[142] DEIS PR at 634_1104, App. F at 6 (J. de Montigny, Wrangell Island Project: Draft Soils Resource Report (May 2016) (Soils Resource Report)) (citing estimate of Tongass carbon stores at 2.8 billion metric tons).

[143] T. M. Barrett, *Storage and Flux of Carbon in Live Trees, Snags, and Logs in the Chugach and Tongass National Forests* at 39 (2014).

[144] *Id.*

[145] W. W. Leighty *et al.*, *Effects of Management on Carbon Sequestration in Forest Biomass in Southeast Alaska*, ECOSYSTEMS 1051, 1059 (2006).

[146] *Id.* at 1062.

II. THE DEIS IGNORES NON-COMBUSTION RELATED EMISSIONS OF GREENHOUSE GASES.

It is widely recognized, including by the DEIS itself,[147] that foreclosed carbon sequestration and release of forest carbon stores are reasonably foreseeable impacts when an old-growth forest is logged. A forest sequesters carbon as its trees grow, including for centuries after they have become old-growth.[148] Studies have found that primary forest in the boreal and temperate regions of the northern hemisphere "alone sequester about 1.3 +/- 0.5 gigatonnes of carbon per year."[149] Pacific Northwestern forests were found to increase in biomass even at 300 and 600 years of age.[150] These results demonstrate that, although a tree's rate of carbon absorption might decline beyond 80 years of age, "old-growth forests can continue to accumulate carbon."[151] Old-growth stores entail not only carbon stored in the larger mass of trees, but also carbon in forest soils, which "will move back to the atmosphere if these forests are disturbed."[152] As a whole, old-growth forests store far more carbon than young forests.[153]

Logging's impact to a forest's carbon flux involves sequestration opportunity costs (that is, foregone carbon sequestration that would have occurred but for logging), as well as heightened release of CO_2 via decomposition of materials that had been under the forest floor (and would have remained there but for logging).[154] Logging an old-growth forest thus results in a net

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[147] DEIS at 155 ("[H]arvesting forests with high biomass and planting new forest reduces overall C stocks more in the near term than if the forest were retained, even counting the C storage in harvested wood products." (quoting J.M.Vose, D.L. Peterson, & T. Patel-Weynand, eds. *Effects of climatic variability and change on forest ecosystems: A comprehensive science synthesis for the U.S. forest sector*, General Technical Report PNW-GTR-870 US Forest Service(2012)).

[148] *See* Soils Resource Report, App. F at 6; K. Lorenz & R. Lal, CARBON SEQUESTRATION IN FOREST ECOSYSTEMS at 120 (2009) ("The [carbon] balance of undisturbed, pristine forests is not in equilibrium as previously hypothesized but these forests continue to sequester carbon. Thus pristine old-growth forests are important components of the global terrestrial [carbon] budget.") (Lorenz & Lal).

[149] S. Luyssaert *et al.*, *Old-growth Forests as Global Carbon Sinks*, 455 NATURE 213 at 213 (2008) (Luyssaert).

[150] Lorenz & Lal at 120.

[151] Luyssaert at 213.

[152] *Id*.

[153] I. Thompson *et al.*, FOREST RESILIENCE, BIODIVERSITY AND CLIMATE CHANGE, A SYNTHESIS OF THE BIODIVERSITY/RESILIENCE/STABILITY RELATIONSHIP IN FOREST ECOSYSTEMS, Secretariat of the Convention on Biological Diversity, Montreal, Technical Series No. 43 at 7, 21, 39, 41 (2009); C. B. Field & J. Kaduk, *The Carbon Balance of an Old-Growth Forest: Building Across Approaches*, 7 ECOSYSTEMS 525, 532 (2004).

[154] M. E. Harmon *et al.*, *Effects on Carbon Storage of Conversion of Old-Growth Forests to Young Forests*, 247 SCIENCE 699, 700 (1990)) (Harmon).

carbon release; this is true notwithstanding the effects of limited carbon storage in wood products and growth of young forest in its place. As a result of disturbing old-growth forest, forest carbon storage is reduced "for at least 250 years."[155] Although young forests grow relatively quickly, "the creation of new forests (whether naturally or by humans) frequently follows disturbance to soil and the previous vegetation, resulting in a decomposition rate of coarse woody debris, litter, and soil organic matter (measured as heterotrophic respiration) that exceeds the [net primary productivity] of the regrowth."[156] In other words, when old-growth forest is logged and replaced by young forest, the young trees' capture of CO_2 in aboveground carbon stores is offset by the more rapid and voluminous release of carbon associated with decomposition above and below ground. The Forest Service recognizes in documents in the record that "the Tongass National Forest would generate a net loss of carbon to the atmosphere if active harvest of old growth is pursued (i.e., harvesting old growth would reduce the carbon sequestering ability of forests)."[157] It also recognizes that a full analysis of the greenhouse gas emissions, and specifically CO_2 emissions, associated with the alternatives must account not only for "carbon that is released to the system due to the burning of fossil fuels (gas) by harvesting equipment," but also for releases from numerous other sources, including:

> . . . the initial increased rate of carbon release resulting from the increased temperatures of soils and water (due to increase solar radiation reaching the newly cleared areas), the ultimate use of the harvested materials (e.g., biomass fuels, pulp, paper, or lumber), the rate of natural decay and carbon release in the system, the rate of tree growth following harvesting, the age of the trees harvested, and the length of time until the next harvest rotation (likely to be about 100 years or more).[158]

Notwithstanding the scientific consensus and the Forest Service's own recognition that carbon flux associated with the project includes sequestration opportunity costs and post-harvest releases of forest carbon stores, the DEIS's discussion of greenhouse gas emission inexplicably restricts its analysis to emissions from fossil-fuel combustion associated with construction and harvesting activities. In discussing "greenhouse gases" the DEIS limits its focus to "GHGs directly emitted by humans."[159] It states: "[t]he primary sources of GHG emissions in the

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[155] Harmon at 700; *see also* Soils Resource Report, App. F at 7; J. E. Janisch & M. E. Harmon, *Successional changes in live and dead wood carbon stores: implications for net ecosystem productivity*, 22 TREE PHYSIOLOGY 77 (2002)) (Janisch & Harmon). Studies more particularly focused on temperate and boreal rainforests of the Pacific Northwest put the progression to old-growth at 150-400 years. DellaSala at 49.

[156] Luyssaert at 213; Krankina & Harmon at 85 ("Following timber harvest, carbon emissions from decomposing slash usually exceed carbon accumulation in young trees (in spite of their vigorous growth) for about a decade.").

[157] *See* Soils Resource Report, App. F at 7.

[158] *Id.*, App. F at 10.

[159] DEIS at 155.

Wrangell Island Project area are from transportation emissions (from seaplane flights, ferry/cruise ship activity, and vehicle travel) and emissions from fuel combustion associated with the community of Wrangell."[160] In discussing "[e]ffects common to all action alternatives," the DEIS focuses exclusively on emissions from "road construction activities, timber harvest operations, and administration of all operations by use of service vehicles throughout the life of the project," all of which involve the combustion of fossil fuels.[161] Under these restricted considerations, the DEIS concludes that "it is uncertain whether the rate of carbon sequestration would be higher or lower under no action compared with the action alternatives."[162]

By restricting its analysis to fossil-fuel combustion emissions, the DEIS fails to account for each action alternative's reasonably foreseeable impact of foreclosed carbon sequestration and releases of carbon stores released when old-growth stands are logged. In the FEIS, the Forest Service must reconsider the carbon flux rate associated with each of the alternative, taking into account the carbon sequestration foregone by destroying old-growth stands, as well as the releases of stored carbon after such harvests.

III. THE DEIS'S QUANTITIATIVE ASSESSMENT OF ALTERNATIVES' CLIMATE-CHANGE IMPACTS IS BOTH INCOMPLETE AND MISGUIDED.

In the context of evaluating impacts associated with climate-change, the Council on Environmental Quality (CEQ) has cautioned against agencies using comparisons of emissions from a government action to global carbon flux. According to the CEQ's Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts, "these comparisons are not an appropriate method for characterizing the potential impacts associated with a proposed action . . . [because t]his approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make relatively small additions to global atmospheric GHG concentrations that collectively have huge impact."[163]

Despite professing its adherence to the very CEQ guidance document discussed above, the DEIS's climate change analysis entails a comparison of greenhouse gas emissions expected from each of the alternatives with the total carbon stores of global forests. Setting the comparing the carbon stock of the Tongass (out of which any project effects would draw) against the total stock of the Earth's forests, the DEIS concludes that "[o]verall, the effects of this project on climate change and air quality would be negligible":[164]

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[160] *Id*.

[161] *Id*. at 155-56.

[162] *Id*. at 156

[163] DEIS PR 634_0380 (Council on Environmental Quality, Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts at 9 (Dec. 18, 2014) (CEQ Revised Draft Guidance)).

[164] DEIS at 157

> Although important on a global scale, it is estimated that the forests of the Tongass represent approximately only one-quarter of one percent of the stored carbon in forests worldwide (USDA Forest Service 2008b, p. 3-19). Therefore, it is reasonable to conclude that small, if even measurable, changes in carbon sequestration, greenhouse gasses, and yellow-cedar decline under any of the action alternatives would not be a relevant factor for choosing among alternatives. . . . the task of understanding all the factors that influence climate change contains substantial uncertainty and for these reasons is not essential to a reasoned choice among alternatives.[165]

As stated in CEQ's guidance, the DEIS's quantitative evaluation of the differences between alternatives is misleading and "does not reveal anything beyond the nature of the climate change challenge itself."[166]

Making this analysis not only misguided but also incomplete, the DEIS purports to make a quantitative comparison, but does so without positing any quantities. Notwithstanding its statement in its scoping report that "the level of carbon emissions will be disclosed for all action alternatives,"[167] in the DEIS the agency "do[es] not attempt to calculate quantifiable impact values," though conceding acknowledges that "the magnitude of effects would differ somewhat by alterative."[168] Documents in the record indicate that the Forest Service was capable of estimating the stores of carbon in the areas subject to its alternatives and thus the carbon flux associated with each alternative. For example, a Draft Soils Resource Report in the record estimates a carbon storage rate of 184.4 tons per acre, with 70 tons per acre in the forest's soils.[169] At no point in the DEIS does the Forest Service estimate the greenhouse gas emissions associated with any of the alternatives.

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[165] *Id.*

[166] *See* CEQ Revised Draft Guidance at 9.

[167] DEIS PR at 634_0682 at 24 (Wrangell Island Project Public and Agency Scoping Report).

[168] *See* DEIS at 156. Confusingly, the agency justifies this omission by citing to the CEQ guidance document, and characterizing its analysis as a "qualitative approach." *See id.*

[169] Soils Resource Report, App. F. at 6.

At most, the DEIS characterizes the net climate-change impacts of action alternatives as "slight." However, even this characterization is ambiguous, since it does not indicate whether the "slight" impact is in the direction of mitigating or exacerbating climate change.[170]

In the FEIS, the Forest Service should quantify estimated carbon impacts from each of the alternatives. At the same time the Forest Service should quantify and address the social costs of the carbon dioxide released into the atmosphere as a result of each alternative. Federal agencies including USDA and the Forest Service have, in other settings, calculated the social costs of carbon from federal land management actions.[171] Once it has estimated net carbon fluxes and attendant social costs of carbon associated with each alternative, the FEIS should not use these estimates to draw comparisons between the discrete climate-change contributions of each alternative and an global figure—like the total global forest carbon stores, as in the DEIS—but rather should be used to evaluate and compare each of the alternatives to each other.

IV. THE DEIS FAILS TO ACCOUNT FOR CHANGES TO THE PROJECT AREA'S RESILIENCE AS A RESULT OF CLIMATE CHANGE.

As recognized in the DEIS,[172] the record,[173] as well as in the scientific literature, it is reasonably foreseeable that climate change will affect the project area's ability to sequester and store carbon. Southeast Alaska has already experienced warming temperatures, and "[p]rojections of future

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[170] *See* DEIS at 31, Tbl. 9. The wording of the question and answers regarding net effects is ambiguous: the DEIS asks a yes or no question whether each alternative "[c]ontribute[s] to the effect or current rate of climate change, including carbon sequestration?" But an affirmative answer—such as those given for alternatives 2 to 5 (all stating "slight increase), confirms only that there is an impact, but not its direction relative to climate change. The words "slight increase" do not indicate whether the words refer to an exacerbating of "the effects of or current rate of climate change," or rather whether the "increase" is with respect to "carbon sequestration" which would be mitigating of climate change. *See* DEIS at 154 ("Sequestration refers to the storage of carbon to reduce atmospheric carbon (CO_2) and mitigates the effects of climate change.").

[171] *See generally* Interagency Working Group on the Social Cost of Carbon, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866* (July 2015 (Revised)); U.S. Environmental Protection Agency, *EPA Fact Sheet: Social Cost of Carbon* (2015); U.S. Department of the Interior, Bureau of Land Management, Draft Resource Management Plan/Environmental Impact Statement: Western Oregon (2015); U.S. Forest Service, Rulemaking for Colorado Roadless Areas: Supplemental Draft Environmental Impact Statement (2015).

[172] *See* DEIS at 153.

[173] *See* DEIS PR 634_0003 at 50 (Tongass National Forest Land and Resource Management Plan, Final Environmental Impact Statement Plan Amendment, Record of Decision (Jan. 2008)) ("There is a risk that climate change may result in increased blowdown, increased tree mortality from insects and disease, increased fire frequency and severity, adverse effects on air quality, changes to vegetation, streams, fish and wildlife habitat, and subsistence and recreational uses of the National Forest.").

changes anticipate even more dramatic effects."[174] In Alaska, "[f]orest ecosystems are expected to undergo various changes as a result of climate change."[175] The warming of average temperatures is likely to reduce forests' abilities to store carbon and regenerate following disturbance, relative to their abilities before climate change.[176] "Rising temperatures . . . may lead to forests becoming a weaker sink or a net carbon source before the end of the century."[177] In other words, as the Forest Service states in the record: "climate change may also affect carbon sequestration in Southeast Alaska."[178] The Forest Service has previously concluded that due to the threats of climate change impacts upon forests, "the best course of action today is continued management of the Tongass for resiliency in the face of uncertain but anticipated change . . . . primarily by management of the Tongass as a mostly intact ecosystem."[179]

In the face of these changes, "[p]rimary forests tend to be more resilient to climate change and other human-induced environmental changes than secondary forests and plantations."[180] Studies have found that North America's Pacific Coastal Rainforests, especially the Tongass, may be

[174] DEIS PR at 634_0378 (J.B. Haufler, C.A. Mehl, and S. Yeats, *Climate change: anticipated effects on ecosystem services and potential actions by the Alaska Region*, U.S. Forest Service at 6 (2010)).

[175] *Id*. at 17.

[176] M. G. Ryan *et al.*, *A Synthesis of the Science on Forests and Carbon for U.S. Forests*, in ISSUES IN ECOLOGY REPORT NUMBER 13, at 13 (Spring 2010).

[177] Intergovernmental Panel on Climate Change, *Climate Change 2014: Mitigation of Climate Change*, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change at 845 (O. Edenhofer *et al.* eds, 2014) (Climate Change 2014 Working Group III Report).

[178] Soils Resource Report, App. F. at 7.

[179] *See* DEIS PR 634_0003_2008 at 50.

[180] *Climate Change 2014 Working Group III Report* at 846; *see also* B. Mackey *et al*., *Policy Options for the World's Primary Forests in Multilateral Environmental Agreements*, 8 CONSERVATION LETTERS 139, Supp. 14, Tbl. s4 (2015).

particularly resilient to climate change.[181] The forests that action alternatives propose to log are those which, relative to other forests worldwide, would otherwise be uniquely suited to function as a carbon store. Despite recognizing that climate change will have effects upon the Tongass and forests worldwide, the DEIS fails to describe how these effects bear upon the alternatives' environmental impacts.

The FEIS should take these studies into account, and, given their findings, evaluate how the alternatives' varying preservation of old-growth stands bears on overall forest resilience, and, *inter alia*, the Tongass's resulting future net carbon flux. The differential ability of old-growth forest stands to withstands the effects of climate changes and continue to function as a carbon store must be considered, because it bears upon, *inter alia*, the extent to which the Tongass's carbon flux will persist depending on the alternatives' differing preservations of old-growth stands.

V. THE DEIS'S ANALYSIS OF ALTERNATIVES IS INADEQUATE BECAUSE IT FAILS TO DEFINE THE TIMESCALE OVER WHICH CLIMATE CHANGE IMPACTS ARE BEING EVALUATED.

The scientific literature explicitly states that the relevant timescale for evaluating the effects of climate change is under 100 years. The Intergovernmental Panel on Climate Change's analysis indicates that in order to avoid a global average surface temperature increase (relative to pre-industrial levels) of 2°C, the atmospheric concentration of CO_2 in the year 2100 will have to be around 450 ppm.[182] Such a concentration can only be achieved, according to the IPCC, if "substantial cuts in anthropogenic GHG emissions" occur "by mid-century through large-scale changes in energy systems and potentially land use."[183] With regard to the timing of these necessary "large-scale changes," the IPCC found that "[d]elaying mitigation efforts . . . through 2030 is estimated to substantially increase the difficulty of the transition to low longer-term emissions levels and narrow the range of options consistent with maintaining temperature change

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[181] D. A. DellaSala *et al.*, *Climate Change May Trigger Broad Shifts in North America's Pacific Coastal Rainforests*, REFERENCE MODULE IN EARTH SYSTEMS AND ENVIRONMENTAL SCIENCES at 9 (2015) ("At broad spatial scales, northern coastal regions and their protected areas (BC, Alaska) may be more resilient to climate change than southern areas that are highly fragmented and more vulnerable to edge effects. . . . That pattern holds true for coastal regions compared to interior drier regions . . . perhaps because of climatic buffering of maritime climates. Our results therefore are important for maintaining ecological integrity and climate resilience in high priority conservation areas from north to south such as the Tongass Rainforest of Alaska . . . . Notably, ecological integrity and climate resilience are emphasized in the 2012 National Forest Planning Rule and climate resilience is emphasized in President Obama's Climate Action Plan (Executive Office of the President, 2013). Thus, the largely intact nature of the Tongass National Forest should provide important opportunities for meeting both policy objectives and for the northward expansion of rainforest communities in the face of climate change.").

[182] Climate Change 2014 Working Group III Report at 10.

[183] *Id.*

below 2°C relative to pre-industrial levels."[184] The IPCC's projections are known to be conservative with respect to the estimated pace of global warming, so that it would be reasonable to believe that necessary large-scale changes would in fact be needed well before 2030 in order for mitigation to succeed.[185] The relevant timescale of climate-change mitigation measures is thus the next 10 to 15 years.

Though the DEIS purports to evaluate the effects of alternatives on climate change, it defines no timescale for its analysis. In the FEIS, the Forest Service must correct the DEIS's mistake of treating timescale as an undefined variable. In doing so, the FEIS must consider the timescale over which the fossil-fuel combustion emissions that it already considers as well as the foreclosed sequestration and carbon stores release that it has not (but must in the FEIS) will occur. In so doing it must map the timescale of the climate change impacts associated with each alternatives onto the timescale relevant to the mitigation of climate change, that is, the 10 to 15 year period over which "large-scale changes" in land use must occur. In the absence of such a understanding of climate effects across the relevant time scale, the Forest Service's analysis is will deficient in evaluating environmental impacts.

FISH & WILDLIFE IMPACTS

NFMA requires that the Forest Service provide for the diversity of plants and animals, based on the suitability and capability of each National Forest, as part of meeting overall multiple-use objectives.[186] The Forest Service recognized that the statute "directs the Forest [Service] to manage wildlife habitat to maintain viable and well distributed populations to ensure continued existence in the planning area."[187] The agency in turn adopted regulations that provide: "Fish

[184] *Id.* at 12.

[185] K. Brysse, *et al.*, *Climate Change Prediction: Erring on the Side of Least Drama?*, 23 GLOBAL ENVT'L CHANGE 327 (2013); W. R. L. Anderegg *et al.*, *Awareness of Both Type 1 and 2 Errors in Climate Science and Assessment*, 95 BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY 1445 (2014); *see also* C. Mooney, *The world's climate change watchdog may be underestimating global warming*, WASHINGTON POST (Oct. 30, 2014) https://www.washington post.com/news/wonk/wp/2014/10/30/climate-scientists-arent-too-alarmist-theyre-too-conservative/ ("According to a number of scientific critics, the scientific consensus represented by the IPCC is a very conservative consensus. IPCC's reports, they say, often *underestimate* the severity of global warming, in a way that may actually confuse policymakers (or worse). . . . [I]n a new study just out in the *Bulletin of the American Meteorological Society*, another group of researchers echoes that point. In scientific parlance, they charge that the IPCC is focused on avoiding . . . false positive[s]—rather than on avoiding . . . false negative[s]. The consequence is that we do not always hear directly from the IPCC about how bad things could be."); G. Scherer, *Climate Science Predictions Prove Too Conservative*, SCIENTIFIC AMERICAN (Dec. 6, 2012) ("Across two decades and thousands of pages of reports, the world's most authoritative voice on climate science has consistently understated the rate and intensity of climate change and the danger those impacts represent, say a growing number of studies on the topic.").

[186] 16 U.S.C. § 1604(g)(3)(B).

[187] 2008 Amended Forest Plan FEIS at 3-261.

and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area."[188] The agency characterizes a viable population, for planning purposes, "as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area."[189] This means, with regard to a forest plan, 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."[190]

In the 2008 Amended Forest Plan explicitly adopted these obligations. It requires the Forest Service to 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."[191] The 2008 Amended Forest Plan 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."[192]

Under the NFMA, the Forest Service must demonstrate that a site-specific project, like the Wrangell Island Project, will be consistent with the 2008 Amended Forest Plan and it statutory obligations to protect wildlife populations.[193] As explained below, the Forest Service consistently fails to explain or, in many cases, even offer conclusions regarding the Wrangell Island Project's compliance with the 2008 Amended Forest Plan and its NFMA obligations, including, most notably, whether the project is consistent with the substantive obligation to ensure the viability of species on the Tongass.

I. THE DEIS FAILS TO ASSESS CUMMULATIVE IMPACTS GIVEN THE REASONABLY FORESEEABLE CONSEQUENCES OF THE AGENCY'S ANTICIPATED FOREST PLAN AMENDMENT.

The Forest Service is on the verge of amending the 2008 Amended Forest Plan in such a manner that would fundamentally alter the decades-long conservation strategy by allowing second-growth logging, including clear-cuts of up to 10-acres, in old-growth reserves, riparian management areas, and beach fringe buffers. These areas comprise some of the most productive lands on the Tongass and their protection from logging has been an essential component of the

[188] 36 C.F.R. § 219.19 (2000).

[189] *Id*.

[190] *Id*.

[191] 2008 Amended Forest Plan at 2-9.

[192] 2008 Amended Forest Plan at 2-4.

[193] 16 U.S.C. § 1604(i); *Lands Council v. McNair*, 537 F.3d 981, 989 (9th Cir. 2008) *overruled on other grounds by Winter v. Natural Res. Def. Council*, 555 U.S. 7, 20 (2008).

agency's conservation strategy. Allowing logging on these protected lands compromises the conservation strategy and risks the viability of many of the Tongass's most at-risk wildlife species. The DEIS, however, entirely fails to analyze the myriad of potential cumulative effects of the Wrangell Island Project given this imminent and fundamental change in Tongass management.

The Forest Service's cumulative impacts analysis requires "some quantified or detailed information; . . . [g]eneral statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided."[194] In addition, the "cumulative impact analysis must be timely," meaning the Forest Service cannot "defer consideration of cumulative impacts to a future date when meaningful consideration can be given now."[195] As explained below, the Forest Service itself is creating the adverse impacts on ecosystems and wildlife when it decided to change the conservation strategy without any scientific support and, as a result, it must analyze the resulting cumulative impacts when it considers site specific decisions.

For decades, the Tongass conservation strategy relied on a system of old-growth reserves, along with various protections for lands outside of the reserves, including areas set aside as wildlife corridors to connect the reserves. Riparian management areas and beach fringe buffers provide essential connectivity between old-growth reserves for a wide variety of Tongass species. Although this system has not been proven sufficient to protect old-growth-dependent wildlife in the Tongass,[196] it provides a protective floor that should not be compromised. As the Pacific Northwest Research Station cautioned after its independent scientific peer review of the Forest Service's conservation strategy:

[194] *Kern v. U.S. Bureau of Land Mgmt*., 284 F.3d 1062, 1075 (9th Cir. 2002)

(quoting *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1379-80 (9th Cir.1998)).

[195] *Kern*, 284 F. 3d at 1075.

[196] *See* W. Smith, Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Populations of Endemic Small Mammals (Feb. 2016) at PDF 9 (Smith Small Mammals Comments); W. Smith, Comments on the Wildlife Conservation Strategy as represented in the Proposed Land and Resource Management Plan (Feb. 2016) (Smith Conservation Strategy Comments). W. Smith, Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Northern Goshawk Populations at PDF 3 (Feb. 2016) (citing Reynolds et al. 1992) (Smith Goshawk Comments). The undersigned groups incorporate all three sets of the Smith Comments into this letter in their entirety, including all cited publications.

> Because of the unusually long time needed for succession to achieve climax in these temperate rain forests, a rotating block design for timber harvesting is not appropriate. Therefore, sufficient biodiversity reserves must be established, and these must be permanently unavailable for timber harvest. Otherwise blocks must be allowed to serve as source areas for many years beyond the age at rotation.[197]

According to the Forest Service itself, "beach fringe was a very key feature of the overall Tongass conservation strategy."[198] Beach and riparian buffers are essential to maintaining viable populations of flying squirrels and other small mammals,[199] eagles, goshawks, deer, marten, otters, bears, shorebirds, waterfowl, bald eagles and other marine-associated species.[200] They also provide essential protections for salmon. The 2008 Amended Forest Plan FEIS explained:

> Beach and estuary fringe, and riparian habitats, have special importance as components of old-growth forests, serving as wildlife travel corridors, providing unique wildlife habitats, and providing a forest interface with marine or riverine influences that may distinguish them as separate ecosystems within the larger old-growth forest ecosystem . . . . In conjunction with riparian areas, which provide connectivity within watersheds, the beach fringe is thought to be a component of the major travel corridor system used by many resident wildlife species . . . . Accordingly, the Forest Plan establishes a Beach and Estuary Fringe Forest-wide Standard and Guideline that prevents timber harvest within 1,000 feet inland from mean high tide…Together, the beach and riparian habitat management features and the mapping of small reserves represented a substantial response to the landscape linkage element of conservation planning and significantly contributed to management of the overall matrix among habitat reserves.[201]

The newly amended forest plan the agency plans to adopt would allow clear-cutting of second-growth on up to 10-acre blocks in these areas, which are protected by the 2008 Amended Forest Plan. There is, however, no science showing that these protected areas can be logged in economically viable ways without compromising the conservation values of the areas. To the contrary, scientists reviewing the Tongass Advisory Committee recommendations were highly

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[197] 2008 Amended Forest Plan AR 603_0009 at 17 (PDF 24) (A. Ross Kiester & C. Eckhardt, *Review of Wildlife Management and Conservation Biology on the Tongass National Forest: A Synthesis with Recommendations* (Mar. 1994)) (emphasis added).

[198] 2008 Amended Forest Plan AR 603_1127 at 2.

[199] Smith Small Mammals Comments at 9.

[200] 2008 Amended Forest Plan at 4-4 to 4-5.

[201] 2008 Amended Forest Plan FEIS at D-10 to D-11.

critical of this strategy. For example, a group of ten independent scientists with significant Tongass experience stated that "we find no empirical data to support the contention that one can log 60-80 year old young-growth in ways that are economically viable and achieve desired wildlife benefits."[202] The scientists' letter reviews the current science on second-growth logging[203] and concludes, "[b]ased on the current science, the prospects of achieving old-growth forest characteristics by placing small clearcuts in mature young-growth stands is extremely low. We anticipate these ecologically important areas will be deferred from logging until that science changes." [204] Similarly, in his comments on the Tongass Advisory Committee recommendations, Matthew Kirchhoff was highly critical of the assertion that the Forest Service could allow 10-acre cuts in protected areas and still maintain their conservation value:

[202] Alaback, P. *et al.*, Letter to Deputy Forest Supervisor Jason Anderson at PDF 2 (May 12, 2015) (Alaback).

[203] Alaback, P.B. and J.C. Tappeiner II, *Response of western hemlock (Tsuga heterophylla) and early huckleberry (Vaccinium ovalifolium) seedlings to forest windthrow*, Can. J. For. Res. 21: 534-539 (1991); 2008 Amended Forest Plan AR 603_0806 (DellaSala, D.A. et al., *Effects of silvicultural modifications of temperate rainforest on breeding and wintering bird communities, Prince of Wales Island, southeast Alaska*, Condor 98:706-721 (1996)); 2008 Amended Forest Plan AR 603_0182 (Hanley, T.A., *Potential management of young-growth stands for understory vegetation and wildlife habitat in southeastern Alaska*, Landscape and Urban Planning 72:95-112 (2005)); 2008 Amended Forest Plan AR 769_05_000797 (Hanley, T.A. *et al., Precommercial thinning: Implications of early results from the Tongass-Wide Young-Growth Studies experiments for deer habitat in southeast Alaska*, Res. Pap. PNW-RP-593, USDA Forest Service, Pacific Northwest Research Station, Portland, OR (2013)); Matsuoka, S. *et al., Succession of bird communities in young temperate rainforests following thinning*, J. Wildlife Management 76(5):919-931 (2012); Van Horne, B., *Density as a misleading indicator of habitat quality*, The Journal of Wildlife Management, 893-901 (1983); Zaborske, R.R and M.H. McClellan, *Understory vegetation development following commercial thinning in Southeast Alaska: preliminary results from the second-growth management area demonstration project, in* Beyond 2001: A Silvicultural odyssey to sustaining terrestrial and aquatic ecosystems (S. Parker & S. Hummel eds, 2002), Pages 74-82, Proceedings of a workshop in 2001 in Hood River, OR. U.S. Forest Service, Gen. Tech. Rep. PNW-GTR-546.

[204] Alaback at PDF 2.

> What you are recognizing is we made a mistake when we clear-cut such ecologically valuable areas in the first place. What you are doing now is sentencing them to an infinite cycle of more logging—out of the misguided notion that calling it restoration makes it good. More logging will create more clearcuts, which will demand more logging of inevitable second-growth. How and when will these stands be allowed to become old-growth—real old-growth that doesn't need our constant tree-cutting intervention to minimally function?[205]

Mr. Kirchhoff concluded that the Forest Service "should take beach fringe and [old-growth reserve]s off the table, except possibly, in very limited research-oriented applications."[206]

In the DEIS, the Forest Service fails to acknowledge the ecological consequences that result from the agency's decision to relax protections for all these areas nor does it account for the cumulative impacts of the Wrangell Island Project on all of the affected species given these changes. Given that the Forest Service and independent scientists have concluded that old-growth reserves, beach fringe buffers, and riparian management areas are essential to maintaining the viability of a wide array of wildlife species on the Tongass, the Forest Service must evaluate what cumulative effects stem from the fact that the agency now wants to allow commercial logging in these areas. The DEIS's failure to examine those impacts, including the conflicting expert opinions, must be rectified in the FEIS.

II. THE FOREST SERVICE MUST EXPLAIN THE IMPACTS ON WILDLIFE POPULATIONS IN A MANNER CONSISTENT WITH NFMA, THE FOREST PLAN AND NEPA'S REQUIREMENTS.

Throughout the DEIS, the Forest Service repeatedly concludes that wildlife populations will continue to persist after the Wrangell Island Project. The agency's decision to offer such a paltry characterization is a marked and disappointing departure from the agency's previous conclusions and explanations in earlier timber sale EISs. It is also arbitrary and unlawful under NMFA and inconsistent with the thresholds established in the 2008 Amended Forest Plan.

On balance, the DEIS offers a confused and frequently inconsistent description of wildlife impacts. In some cases, the DEIS explains the agency concludes that a bird or wildlife population with merely "persist" after the Wrangell Island Project.[207] Even more curious, the agency repeatedly concludes a population will persist "at current levels," but admits it does not know the current population level and fails to describe its basis for these predictions, making it impossible to know whether the population will persist at that level. For example, the DEIS

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[205] Kirchoff, M., Comments on Draft Tongass Advisory Committee Recommendations at 9 Cmt. 48 (Apr. 19, 2015).

[206] *Id.* at 2, Cmt. 6.

[207] *See, e.g.*, DEIS at 91 (Queen Charlotte goshawk), 94 (wolves), 96 (marten), 100 (bears), 103 (red squirrels), 106 (deer), 109 (marbled murrelets), and 110 (southern red-backed voles),

admits that the agency lacks a current population estimate for the Queen Charlotte goshawk either on the Tongass as a whole or on Wrangell Island.[208] The DEIS, however, concludes "Wrangell Island would continue to provide suitable habitat and the Queen Charlotte goshawk would continue to persist at current levels."[209] With regard to wolves, the DEIS simply states wolves "occur on Wrangell Island."[210] It never explains whether the agency considers the wolf population sustainable.[211] Instead, it states: "There could be cumulative effects on wolves or their prey when past, present and reasonable foreseeable future projects are combined with the implementation of the Wrangell Island Project; however, wolves would continue to persist on Wrangell Island."[212] With regard to deer, the DEIS explains "[t]here are no reliable population estimates for deer populations in [Game Management Unit] 3, which includes Wrangell Island,"[213] but then concludes goes "deer would continue to persist at current levels."[214]

Simply put, the DEIS provides one of the weakest assessment of wildlife impacts that the undersigned groups have ever seen the agency produce. The FEIS must provide a clear, consistent assessment of the impacts on the ability of Wrangell Island to support sustainable wildlife populations after this timber sale, while explaining why the project is consistent with the agency's obligations to ensure wildlife viability on the Tongass. Suggesting that bird and wildlife species might simply "persist" is insufficient. If the agency has concluded these populations are not sustainable or not able to contribute to overall viability, then it must acknowledge these facts and the resulting biological consequences in the FEIS.

NFMA and the other statutes under which the Forest Service operates require the agency to balance timber objectives with other forest values such as wildlife, recreation, and subsistence.[215] Additionally, the agency must demonstrate that a site-specific project is consistent with the governing forest plan.[216] This requires the agency to explain why it believes the Wrangell Island Project is consistent with the 2008 Amended Forest Plan, including the standards and guidelines governing wildlife. In the DEIS, the agency fails to conduct that analysis in almost every

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[208] *See* DEIS at 75 (citing a 2007 estimate of "261 to 336 breeding pairs on the Tongass National Forest").

[209] *Id*. at 91.

[210] *Id*. at 91.

[211] *Id*. at 93.

[212] *Id*. at 94.

[213] *Id*. at 79.

[214] *Id*. at 106.

[215] *See* 16 U.S.C. § 1604(e) (NFMA); *id*. § 529 (Multiple-Use Sustained-Yield Act); *id*. § 539d(a) (Tongass Timber Reform Act); *id*. § 3120(a)(3)(A) (Alaska National Interest Lands Conservation Act); *see also Natural Res. Def. Council*, 421 F.3d at 808-09 (explaining balancing of timber and other goals in the Tongass).

[216] 16 U.S.C. § 1604(i); *Lands Council v. McNair*, 537 F.3d 981, 989 (9th Cir. 2008) *overruled on other grounds by Winter v. Natural Res. Def. Council*, 555 U.S. 7, 20 (2008).

instance. Instead, the agency speaks in terms of populations continuing to "persist" after the Wrangell Island Project. As an initial matter, the agency never explains what it means to persist. More importantly, however, persistence is not the threshold established in the standards and guidelines of the 2008 Amended Forest Plan.[217] Ultimately, of course, the agency must demonstrate why it can pursue the Wrangell Island Project and still ensure the continued viability of wildlife species.[218] The agency must correct these pervasive problems and conduct the required wildlife analyses, because do otherwise the agency would act contrary to its statutory obligations and 2008 Amended Forest Plan.

III. THE DEIS RELIES ON LIMITED AND OUT-DATED SCIENCE.

The DEIS relies on very limited science for marten, squirrels and endemics, bears, deer, and wolves. Additionally, much of the science that is included is outdated.

- Marten: There are ten studies on marten in the planning record index. The majority (6) were published in the 2000s. The remaining four are from the 1990s, and there are no current (i.e., from the 2010s) listed on the index. The most current study is from 2008.

- Squirrels and Endemics: There are thirteen studies on squirrels and endemic species, again with the majority (9) published in the 2000s. There are no studies listed on the index from the 2010s. The remaining four were published in 1978, 1986, and 1988. The most current studies are from 2007.

- Bears: The planning record incudes ten studies on bears. The majority (5) were published in the 2000s. Three survey and inventory reports from 2011 and 2012 are also included as well as one study from 1976 and one from 1982.

- Wolves: The planning record includes 11 studies on wolves. The slight majority (6) were published in the 2000s. Three were published in 1987, 1996 (the conservation assessment), and 1999. The remaining two were published by ADF&G in 2012.

- Deer: There are 23 deer studies, with the majority published in the 1980s (10) and 1990s (7). The remaining six studies from the 2000s (4) and the 2010s (2).

[217] *See, e.g.,* 2008 Amended Forest Plan at 4-96 ("to provide and conserve habitat to assist in maintaining long-term sustainable marten populations"); *id*. at 4-95 ("maintaining long-term sustainable wolf populations").

[218] *See id*. at 4-89 ("Provide 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.)").

In preparing the FEIS, the Forest Service needs to provide additional contemporary scientific publications to meet the obligation to base its decision on complete, accurate, and up to date information.

IV. SITKA BLACK-TAILED DEER

The Wrangell Island Project highlights one of the great travesties of the Tongass timber program. The timber industry and the Forest Service have targeted portions of the Tongass for repeated, intensive, and devastating logging practices that leave the affected areas with irretrievable environmental damage. Even without the current proposed logging, it will take hundreds of years for Wrangell Island to recover from the adverse effects of historical logging. Instead of allowing that process to proceed, the Forest Service proposes to subject one of the hardest hit areas with another massive sale. Simply put, these are the last places on the Tongass the Forest Service should be logging. The problems confronting the deer population on Wrangell illustrates this very problem with vivid clarity.

Sitka black-tailed deer occupy most islands in Game Management Unit 3.[219] The DEIS acknowledges there are no reliable population estimates for deer in the unit and that populations in the area have exhibited extreme historical fluctuations.[220]

ADF&G summarizes the general trends in Game Management Unit 3 for deer as follows:

> Deer populations . . . were high during the 1950s and 1960s after extensive wolf control, but have remained at relatively low levels in most of the Unit since a series of severe winters in the early 1970s. By the late 1990s, deer had recovered to moderate levels in some portions of the Unit but again declined to low levels throughout the Unit following the severe winters of 2006-2009.[221]

[219] ADF&G, Feasibility Assessment for Increasing Sustainable Harvest of Sitka Black-Tailed Deer in a Portion of Game Management Unit 3 (Oct. 2012) (Feasibility Assessment).

[220] DEIS at 79. In Southeast Alaska, deer population estimates are primarily based on pellet group counts, which, for Game Management Unit 3, go back to 1980s for some VCUs (e.g., VCU 448/Woewodski/S. Mitkof). *See, e.g.*, Karin McCoy *et al.*, *Assessing Population Estimation Protocols for Sitka Black-Tailed Deer Using DNA from Fecal Pellets*, Final Wildlife Research Report at 1 (2014); Lowell at 55-58, Tbl. 1. Brinkman *et al.* have also generated abundance estimates based on individually identified deer using DNA from fecal pellets. *See* DEIS PR 634_0704 (Todd J. Binkman et al., *Estimating Abundance of Sitka Black-Tailed Deer using DNA from Fecal Pellets*, Journal of Wildlife Management 75(1):232-242 (2011).

[221] Feasibility Assessment at 1.

ADF&G also explains that: "Pellet-group trends suggest [populations] are at a much lower level than 15,000 [deer], while [ADF&G] harvest estimates have remained well below the 900 deer threshold established by the [Alaska Board of Game] in 2000 each year since 2005."[222]

According to the Forest Service, deer populations on most islands in the Unit "have declined since 2004 and are thought to be well-below carrying capacity."[223] As detailed below, these population declines have resulted in corresponding declines in deer harvests.[224]

A. The DEIS Downplays the Impacts on Game Management Unit 3's Deer Population.

The DEIS offers little more than a handful of paragraphs to discuss the adverse impacts on deer. The DEIS's paltry suggestion that there is some risk that the deer population might decline does not satisfy the agency's NEPA obligations and the agency's lack of meaningful analysis about the deer population runs contrary to its NFMA obligations.

The primary factors for the great swings in deer numbers and harvests in Game Management Unit 3 are contributed to (1) clear-cut logging that reduces winter carrying capacity; (2) severe winter weather; (3) predation by wolves and bears; and (4) illegal hunting.[225] Specific to Wrangell Island, the Forest Service also suggests that hunting pressure in general may have contributed to low deer densities on the island, as well as the combination of all factors.[226] The degree to which each of the factors have driven, or currently drive, poor population and harvest numbers varies. According to some, "[s]evere winter weather causes most population declines."[227] For example, significant population declines were associated with severe winters in the 1960s and 1970s, resulting in hunting restrictions in 1973 and complete closure of the unit in 1975-1979.[228] 2006-2009 were also heavy snow years.[229] In 2012, Petersburg area biologist Rich Lowell contributed the low deer numbers in the Unit to "'die-offs associated with record snowfall in 2006, followed by three consecutive winters with above average snowfall. On top of

[222] ADF&G, Operational Plan at 1. Other sources describe the 1970s decline as a "crash[]," which resulted in a complete closure of Game Management Unit 3 in 1975 and the unit remaining more or less closed for most of the following 18 years. DEIS PR 634_0575 (David Person et al., Alexander Archipelago Wolf: A Conservation Assessment at 16 (Person *et al*.)

[223] DEIS at 79.

[224] *Id*.; Lowell at 50 ("we believe the recent declines in pellet-group densities and the decline in the estimated unitwide harvest reflect actual declines in the unit's deer population.")

[225] Lowell at 48; DEIS at 79.

[226] Wrangell Island Analysis Report at 61. Hunting in Game Management Unit 3 is in part facilitated by the extensive network of logging roads. *See, e.g.*, Lowell at 49.

[227] Lowell at 48.

[228] *Id.*

[229] *Id.* at 50.

those hard winters, there's predation by wolves and black bears.'"[230] Game Management Unit 3 is thought to be "the only area in Southeast Alaska where deer harvest was actually lower in the severe winter of 2006."[231]

According to ADF&G, even though severe winter weather can contribute toward "dramatic population swings," the greater concern is that "habitat capability and deer numbers are expected to decline in some areas as large tracts of previously logged areas reach the closed canopy stem exclusion stage and become extremely poor deer habitat."[232] Elsewhere ADF&G explains that "[c]lear-cut logging has and will continue to reduce winter carrying capacity for deer in some areas [of Game Management Unit 3]."[233] Further, the "extensive habitat alterations due to clear-cut logging [in the Unit] can exacerbate the effects of severe winters . . . [by] remov[ing] productive old growth stands that are important winter habitat for survival of deer."[234] ADF&G further concludes that "continued reductions in deer habitat capability associated with past, present, and future timber harvests will continue to reduce the unit's ability to support high deer numbers over the long term (several decades)."[235]

In 1998, the Forest Service admitted:

> There is no high value deer winter range habitat on Wrangell Island based on the most recent Deer Habitat Model. Much of the moderate value deer winter habitat has been logged or severely fragmented by past timber harvest. A few small blocks of moderate value habitat remain near the City Reservoir, at Fools Inlet and within the Thorns Old Growth Reserve.[236]

The agency estimated the carrying capacity of Wrangell Island at 2,824 deer, but even then admitted "current deer densities are believed to be much lower than that based on pellet counts."[237] It appears that only two pellet group surveys have been done on the island, both in

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[230] Riley Woodford, Alaska Fish & Wildlife News, *Deer Hunting Forecast and "State of the Deer"* (Aug. 2014).

[231] 2007 Harvest Report at 7; *see also* 2007 Harvest Report at 9 (discussion on snow conditions 1995-2008).

[232] ADF&G, Species Profile, Sitka Black-Tailed Deer (*Odocoileus hemionus sitkensis*): Status, Trends, and Threats.

[233] Feasibility Assessment at 1.

[234] ADF&G, Operational Plan at 3.

[235] *Id.* at 22.

[236] DEIS PR 634_0121 at 61 (USFS, Wrangell Island Analysis Report (1998) (Wrangell Island Analysis Report)).

[237] *Id*.

VCU 4800 in the southeast end of the island in the Fool's area,[238] which is part of the Wrangell Island Project.[239] The mean pellet groups per plot in that area were 0.54 and .61 in 1994 and 2000, respectively.[240] The Forest Service concluded that this area contains some moderate value deer winter habitat and one of the "only high volume stands remaining on Wrangell Island."[241] The DEIS completely ignores of these issues.[242]

The Forest Service does not explain how far below carrying capacity the deer population has fallen or whether the population is stable. It does not describe to what degree the current carrying capacity of the area is already below the habitat capability generally recognized as necessary to maintain a sustainable population of deer (such that it supports human hunting and wolf predation). Stated more directly, the agency must explain the relationship between the carrying capacity, the habitat capability, and the deer population (both current and future). It fails to describe the habitat level that must remain to keep the deer population at its current population.

Instead of conducting the required analysis, the Forest Service blandly asserts that the reduction in habitat capability "could lead to a decline in the deer population."[243] Similarly, the agency explains "[d]eclines in the deer population resulting from reduced habitat capability may decrease the availability of deer to wolves and hunters."[244] The agency misleads the public when it suggests that a deer population decline is nothing more than a possibility. In fact, it asserts the deer populations "would continue to persist at current levels."[245] This assertion is unsupported by any explanation or analysis, making it arbitrary and misleading.

The FEIS must correct these deficiencies and provide the public a clear and accurate assessment of the impacts of the agency's unrelenting pressure on Wrangell's remaining old-growth habitat. With regard to NFMA, the agency must conduct the analysis necessary to demonstrate that it is properly balancing the competing interests of deer, wolves, deer hunter, and logging, and justify its proposal to further reduce habitat to levels well below that required to support sustainable wolf and deer populations.

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[238] Lowell at 57, Tbl. 1; DEIS at 11, Fig. 2.

[239] DEIS at 57.

[240] Lowell at 57, Tbl. 1.

[241] Wrangell Island Analysis Report at 36.

[242] *See* DEIS at 79.

[243] DEIS at 104.

[244] *Id*.

[245] DEIS at 106.

B. The DEIS Also Minimizes the Impacts on Deer Harvest Trends.

In the 1980s, estimated deer harvests in Game Management Unit 3 were very low, hovering at or below 200 animals.[246] Throughout most of the 1990s, trend was positive, with harvests peaking in 1998 at around 1,000 deer.[247] Throughout most of the 2000s, harvest again trended down, dipping to 377 deer in 2008, the lowest since 1990.[248]

In 2000, the Alaska Board of Game set deer population and harvest objectives for Unit 3 at 15,000 and 900 animals, respectively.[249] The population objective of 15,000 deer "was developed by assessing the deer habitat carrying capacity within the unit and the local Area Biologist's subjective assessment of where the unit's deer population stood relative to carrying capacity."[250]

The following table provides harvest data for 1997-2014. It shows that during this period, the deer harvests in Game Management Unit 3 averaged 685 deer. During the same time period, the number of hunters averaged 897, fluctuating between the high of 1,186 (1999 & 2000) and low of 617 (2008 & 2009).[251]

[246] ADF&G, Operational Plan at 4, Fig. 2.

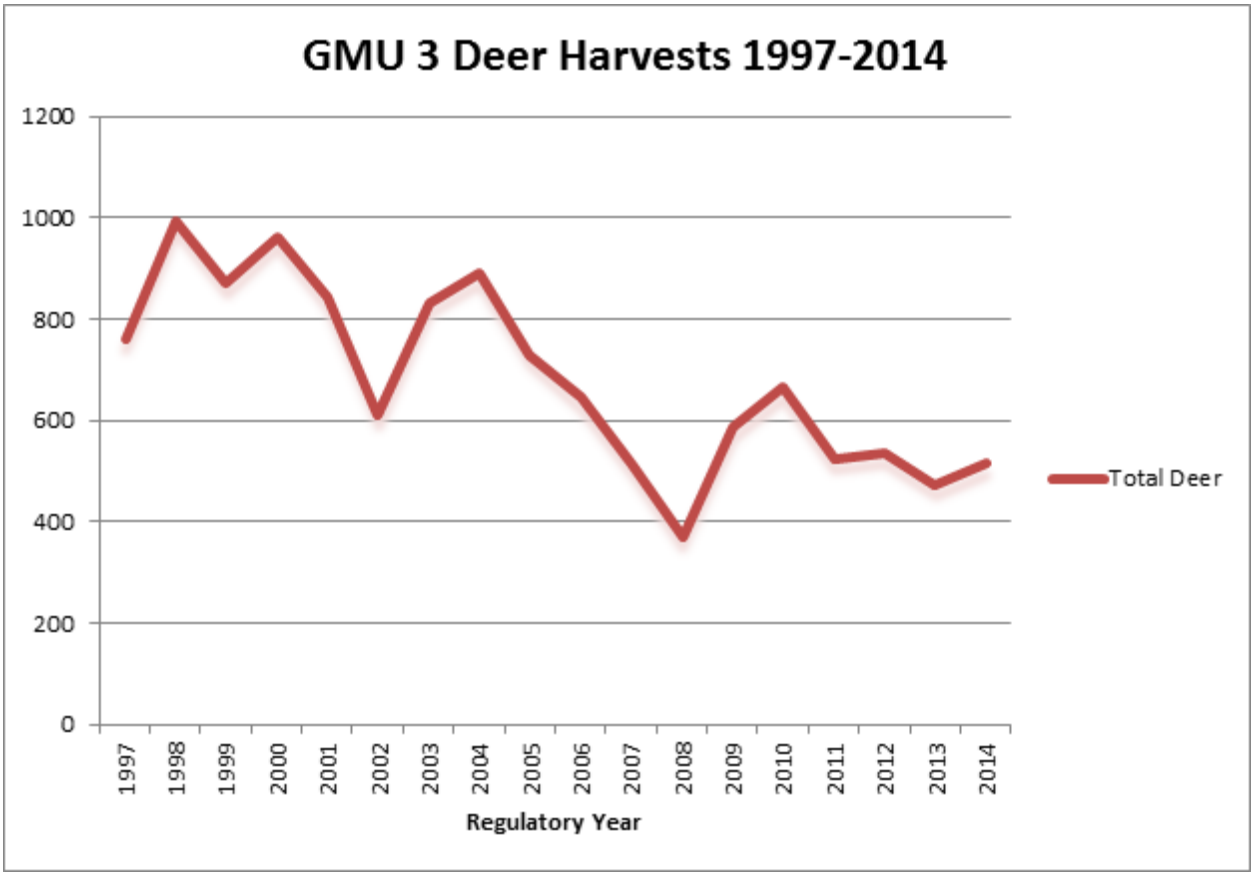
[247] *Id.*

[248] *Id.*

[249] Lowell at 49.

[250] ADF&G, Operational Plan at 1.

[251] ADF&G, Sitka Black-tailed Deer Hunting in Alaska, Harvest Statistics, http://www.adfg.alaska.gov/index.cfm?adfg=deerhunting.deerharvest. It is not clear from ADF&G's website, whether these total deer harvest numbers include estimated illegal harvests. The Deer Management Report provides estimated illegal harvest numbers, which, between 1997 and 2011, averaged around 19 deer, with high of 114 deer in 1998. *See* Lowell at 59, Tbl. 2. It is also important to note that the harvest estimate method used by ADF&G changed in 2011. *See* ADF&G, Operational Plan at 1 ("Prior to 2011, the department estimated the Unit 3 deer harvest based on a regional questionnaire mailed randomly to 33% of deer harvest ticket holders."); Lowell at 59, Tbl. 2 fn. c. (data source changed in 2011).



The DEIS fails to address the consequences that deer hunting is on a demonstrable decline. The FEIS must correct this failing. To comply with NFMA, the agency must explain its rationale for concluding that the Wrangell Island Project reflects the proper balance of the agency's multiple use obligations given the precipitous decline in deer hunting on Wrangell Island.

V. WOLVES

A. The Forest Service's Conclusions Regarding Wolves is Inconsistent With the Agency's Goals in the 2008 Amended Forest Plan and its Obligations Under NFMA.

The Forest Service explains in the DEIS that: "Current deer habitat capability on Wrangell Island (WAA 1903) is below the Forest Plan guideline of 18 deer/mi^2, which suggests that the project could result insufficient numbers of deer to sustain wolves and human hunting."[252] In characterizing the cumulative effects, the DEIS provides: "However, wolves are highly mobile within their territories and adjacent islands with higher deer densities would continue to support wolves on the Wrangell Ranger District."[253] The Forest Service is unable to conclude that a

[252] DEIS at 91-92.

[253] DEIS at 93. The agency admits there is only one wildlife analysis area in the entire biogeographic province that meets or exceeds 18 deer per square mile, and that is Zarembo Island. *Id.*

sustainable wolf population would remain after the Wrangell Island Project. Instead, the agency explains "wolves would continue to persist on Wrangell Island."[254]

This 2008 Amended Forest Plan directs the Forest Service to "assist in maintaining long-term sustainable wolf populations."[255] It makes clear that the agency should try to provide "sufficient deer habitat capability to first maintain sustainable wolf populations, and then to consider meeting estimated human deer harvest demands."[256] The DEIS makes clear that the Forest Service has concluded that the wolf population would not be sustainable after the Wrangell Island Project and instead the population should continue to persist at some undefined level. This is unacceptable; the agency should not proceed with a project that continues to lower that density. At a minimum, the agency must admit that it will not meet the "sustainable" objective and the FEIS must disclose this conclusion in a clear and forthright fashion, and the agency must justify its choice to meet this important goal of the forest plan. Moreover, the agency must explain how it can proceed with this project in the face of the obligation to protect viable and well distributed populations of wolves on the Tongass.

B. The Forest Service Must Disclose in the FEIS the Full Impacts of Increased Road Density Resulting From the Wrangell Island Project and Justify Its Compliance With NFMA.

Like virtually every project before it, the Wrangell Island Project will drive road density above the limits generally recognized to ensure wolf populations do not suffer unsustainable rates of mortality. The DEIS explains that "[t]he Forest Plan states that a road density of 0.7 to 1.0 mi/mi^2 or less may be necessary to reduce harvest-related mortality risk where locally unsustainable wolf mortality has been identified."[257] The DEIS reports that:

> Existing total road densities in WAA 1903 are at the upper end of the Forest Plan recommendation of 0.7 to 1.0 where road access and associated human-caused wolf mortality is a concern. Harvest rates may increase under alternatives that increase the total road density on Wrangell Island (open and closed roads). Therefore, all action alternatives would have a direct and indirect effect to wolf individuals and their habitat.[258]

It goes onto to conclude that "[a]ll action alternatives would put Wrangell Island above the 1.0 mi/mi^2 road density which could lead to an increase in human caused wolf mortality."[259]

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[254] *Id*. at 94.

[255] 2008 Amended Forest Plan at 4-95.

[256] *Id*.

[257] DEIS at 75.

[258] *Id*. at 92.

[259] *Id*. at 93.

Ultimately the agency must disclose the consequence of the increased road density on the agency's ability to maintain sustainable wolf populations in the project area, as well as the ability to ensure wolf populations remain well-distributed and viability. This analysis is particularly important given the DEIS fails to disclose that the "interagency analysis" that is supposed to trigger the road density measures in the 2008 Amended Forest Plan is irretrievably broken.[260] The U.S. Fish and Wildlife has repeatedly reached conclusions regarding unsustainable rates of mortality, but the Alaska Department of Fish and Game refuses to do so and, as a result, road building and mortality go on unchecked. The DEIS must disclose this infirmity and explain the resulting consequences.

C. The Wrangell Island Project and the DEIS Suffer From the Same Infirmities Addressed in *In Re: Big Thorne Project and 2008 Tongass Forest Plan*, No. 15-35244 (9th Circuit).

The 2008 Amended Forest Plan's critical mechanism for meeting the Forest Service's obligation to ensure the wolf remains viable in the Tongass is, the agency concedes, discretionary and non-binding and, as a result, the plan does not require the agency to maintain the necessary old-growth habitat to "insure [the wolf's] continued existence."[261] The Wrangell Island Project is being pursued pursuant to that forest plan.[262]

Pursuant to the NFMA regulations, "wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area."[263] "[T]o insure that viable populations will be maintained," a forest plan must manage habitat in such a way as "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."[264] As described above, the 2008 Amended Forest Plan explicitly incorporates these obligations.

In adopting the 2008 Amended Forest Plan, the Forest Service concluded that if the agency managed habitat in such a way that maintained sustainable wolf populations, it would by necessity maintain viable wolf populations. According to the Forest Service, the Wolf Conservation Assessment provided the best available information regarding wolf viability and it concluded that it was not scientifically defensible to identify what minimum wolf population would insure the wolf's continued existence. As a result, the Forest Service accepted its experts' recommendation that the agency meet its viability obligations by minimizing the risk of dropping below that unidentified viability floor by maintaining sufficient old-growth habitat to support the higher level of sustainable wolf populations (which accounts for deer hunting and wolf hunting

[260] *See* 2008 Amended Forest Plan at 4-95 (WILD1.XIV.A.1).

[261] 36 C.F.R. § 219.19 (2000).

[262] DEIS at 5.

[263] 36 C.F.R. § 219.19 (2000); *see also* 16 U.S.C. § 1604(g)(3)(B).

[264] *Id.*

and trapping). The Forest Service, however, concedes the 2008 Amended Forest Plan does not require the agency to maintain sufficient habitat to support sustainable wolf populations.[265]

In short, the Wrangell Island Project demonstrates the infirmity of the 2008 Amended Forest Plan. The Forest Service is not obligated to manage habitat in such as to ensure the viability of the wolf, which allows damaging projects like this one to proceed.

VI. ENDEMICS AND SMALL MAMMALS

In addition to the general wildlife directives discussed above, the 2008 Amended Forest Plan establishes as one of its objectives "to maintain habitat to support viable populations and improve knowledge of habitat relationships of rare or endemic terrestrial mammals that may represent unique populations with restricted ranges."[266] The Forest Plan directs the agency to:

> Use existing information on the distribution of endemic mammals to assess project level effects. If existing information is lacking, surveys for endemic mammals may be necessary prior to any project that proposes to substantially alter vegetative cover (e.g., road construction, timber harvest, etc.). Surveys are necessary only where information is not adequate to assess project-level effects.[267]

The DEIS makes clear that "[e] ndemic species are distinct, unique species with a restricted area or range."[268] It goes on to explain:

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[265] *See generally* Forest Plan Appellants' Opening Br. (July 2, 2015) (Doc. 19), Answering Brief of the Federal Defendants (Aug. 20, 2015) (Doc. 37-1), Forest Plan Appellants' Reply Brief (Sept. 8, 2015) (Doc. 45) in *In Re: Big Thorne Project and 2008 Tongass Forest Plan*, No. 15-35244 (9th Circuit). The briefing in this case, including the arguments advanced by the Forest Service, and the supporting record citations are incorporated by reference into this comment letter in their entirety.

[266] 2008 Amended Forest Plan at 4-97 (WILD1.XIX.A).

[267] *Id*. (WILD1.XIX.A.1).

[268] DEIS at 83-84.

> There are roughly 24 mammal species or subspecies considered endemic to Southeast Alaska (Smith et al. 2005). Mammal surveys on the Tongass have resulted in the documentation of new distributions, new species. However, there continue to be gaps in knowledge about the natural history and ecology of wildlife subspecies indigenous to Southeast Alaska (Hanley et al. 2005). Within Southeast Alaska, roughly 20 percent of known mammal species and subspecies have been described as endemic to the region. The long-term viability of these endemic populations is unknown, but of increasing concern since island endemics are extremely susceptible to extinction because of restricted ranges, specific habitat requirements, and sensitivity to human activities such as species introductions (http://msb.unm.edu/isles/).[269]

The DEIS acknowledges there are "increasing" viability concerns for endemic populations, but fails to explain those concerns. Given those concerns, it is all the more important that the Forest Service comply with the Forest Plan's requirements to use contemporary information regarding those endemic populations to understand the potential effects of the Wrangell Island Project. The agency must explain whether and why it concluded it did not need additional information regarding these populations. The lack of analysis makes it impossible for the agency to conclude that it can approve the Wrangell Island Project as consistent with the 2008 Amended Forest Plan and its substantive obligations to ensure the continued viability of these endemic populations.

Under NFMA, the Forest Service cannot blitely state that it does not know whether it can provide for the long-term viability of endemic populations. As explained above, the Forest Service has a mandatory and substantive obligation to ensure the viability of these populations. To do otherwise, the agency would violate NFMA.

A. Southern Red-Backed Vole

The southern red-backed vole occurs as four endemic subspecies on the Tongass; Wrangell Island is home to one of those subspecies (*Myodes gapperi wrangeli*). As explained below, the DEIS fails to analyze the impacts of logging on these voles in any meaningful way. The agency also fails to explain whether or why it concluded it could approve the Wrangell Island Project and still ensure the viability of this endemic subspecies or the species as a whole. For these reasons, the concerns discussed below raise both NEPA and NFMA infirmities.

As Winston Smith, Ph.D.'s comments to the Forest Service demonstrate, the Wrangell Island Project raises serious questions regarding the project-level impacts, as well as the agency's ability to ensure the viability of this subspecies of southern red-backed vole.[270] According to the DEIS, "[t]he southern red-backed vole (*Myodes gapperi wrangeli*) is the only endemic small

[269] *Id*. at 83 (emphasis added).

[270] *See generally* W. Smith, Comments on the Wrangell Island Timber Sale Project (July 2016) (Smith Vole Comments).

mammal identified on Wrangell Island," noting it also occurs on nearby Sergief Island.[271] The Forest Service, however, does not disclose that "Wrangell Island is home to virtually the entire population of this subspecies
in the Tongass."[272]

The DEIS also fails to explain there is no current population estimate for these voles. Even more troubling, it does not acknowledge that the last population estimate demonstrated a precipitous decline, as the 2000 population was only 20% of the 1998 population.[273] Indeed, the DEIS makes clear that the research the Forest Service relies on is already more than 10 years old, making the agency's analysis significantly outdated. The DEIS explains, for example, that "[i]nformation about Wrangell Island red-backed voles comes from Smith and Nichols (2004) and the related Smith et al. (2005) on Wrangell Island."[274] This research "tested the association with old-growth specifically for the Wrangell Island red-backed vole," and concluded that the voles, and particularly breeding populations demonstrated a significant preference for old-growth habitat.[275]

In describing the direct and indirect effects of the Wrangell Island logging on this endemic species, the DEIS offers only two paragraphs.[276] The DEIS begins by acknowledging "[t]imber harvest would directly affect the southern red-backed vole through habitat loss (all [productive old-growth], and by altering the distribution of habitats across the landscape."[277] The DEIS continues by explaining that the "[a]lternatives that harvest the most [productive old-growth] . . . would be expected to have the greatest effect to the southern red-backed vole."[278] Alternative 2, the preferred alternative, would eliminate approximately nine percent of the existing productive old-growth habitat on National Forest Service lands.[279] The DEIS, without explanation, concludes by stating "all action alternatives . . . would have minimal effect on red-backed voles which would lead to population declines and reduced genetic interchange because of habitat fragmentation."[280]

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[271] DEIS at 83.

[272] Smith Vole Comments at 1.

[273] *Id*. at 2.

[274] DEIS at 83.

[275] *Id*.

[276] *Id*. at 109-110.

[277] *Id*. at 109.

[278] *Id*.

[279] *Id*. at 110.

[280] *Id*.

In the two paragraphs describing the cumulative effects of the Wrangell Island Project, the Forest Service offers even less.[281] In acknowledging the logging on 6,800 acres of National Forest Service lands as well as logging and habitat loss from a variety of other sources, the DEIS makes the nonsensical suggestion that "[o]ne possible benefit is the [Alaska Mental Health Trust] land exchange where the Forest Service would gain approximately 1,105 acre[s], but the majority of this land has already been harvest and of little value to this [productive old-growth] associated species."[282] In the end, the DEIS concludes:

> Therefore, implementation of the proposed action alternatives will increase habitat fragmentation, human disturbance, and cause a loss of habitat, when combined with past, present, and reasonably foreseeable future projects. Although there would be effects on Southern red-backed vole habitat, they should continue to exist on Wrangell Island at current levels.[283]

In stark contrast, Dr. Smith raises serious concerns regarding the adequacy of the Forest Service's analysis and its unfounded conclusions regarding voles. He concludes that "the Forest Service needs more information regarding the status of the southern red-backed vole population on Wrangell to understand the project level effects of the proposed 65 million board feet old-growth timber sale project."[284] He explains:

> Given the significant threats facing this endemic species and the lack of a habitat model or proxy, it is impossible to assess whether a project adversely (or even irretrievably) affects these voles if one does not have a benchmark population estimate before the project is implemented.[285]

The Forest Service has relied on Dr. Smith's expertise regarding endemics since the forest plan's inception. The agency must respond to his concerns in the FEIS. The agency must conduct a population survey or, at minimum, justify its decision to proceed with the Wrangell Island Project despite lacking essential information regarding these voles. As it stands, the agency's assessment of project-level effects raises both NEPA and NFMA infirmities.

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[281] *Id.*

[282] DEIS at 110. Indeed similar assertions are repeated across a wide variety of species in the DEIS, with no explanation of why the agency concluded this area, the majority of which has already been logged, will offer any beneficial effects to productive old-growth associated species. *See, e.g.*, *id.* at 89 (goshawks), 93 (wolves), 96 (marten), 99 (brown and black bears), 101 (red-breasted sapsucker, hairy woodpecker, and brown creeper), 102-03 (red squirrels), 105 (deer), 109 (marbled murrelets), and 111 (migratory birds). Such assertions are misleading and must be corrected in the FEIS.

[283] *Id*. 110 (emphasis added).

[284] Smith Vole Comments at 2.

[285] *Id*.

The Wrangell Island Project also raises significant concerns regarding the Forest Service's ability to ensure the viability of the southern red-backed vole, and the Wrangell Island subspecies, on the Tongass. As an initial matter, the DEIS does not explain whether the agency has concluded it can approve the Wrangell Island Project and still ensure the viability of this vole on the Tongass, including the Wrangell Island subspecies. The DEIS only concludes that the agency believes these voles should continue to exist at the current, albeit unknown, level.[286]

Dr. Smith expresses specific concerns regarding the agency's ability to ensure the viability of these voles:

> [G]iven the extremely small geographic footprint that these voles inhabit, the lack of any population information, the substantial amount of old-growth habitat on Wrangell that has already been logged, and the additional loss of old-growth from the proposed Wrangell Island timber sale, I conclude the Wrangell Island Project raises significant viability concerns regarding the future of this endemic vole on the Tongass.[287]

Notably, the FEIS for the 2008 Amended Forest Plan affords no guidance on this issue. It simply collapsed all endemic species together into one massive category and offered no explanation of the agency's viability conclusions with regard to any particular species.[288] It explained that the Forest Service concluded endemics faced the lowest overall likelihood of all species-specific effects.[289] The agency, however, never analyzed whether losing these voles on Wrangell or even threatening to lose them on Wrangell raises a viability concerns.

Given the agency's admission in the DEIS that "long-term viability of these endemic populations is unknown, but of increasing concern"[290] and the agency's paltry conclusion that the southern red-backed vole "should continue to exist" (albeit at unknown levels)[291], the Wrangell Island Project fails to meet the mandates of NEPA or NFMA.

B. Marten

The DEIS explains that "[t]he Wrangell Island Project is within the Wrangell/Etolin Island Bio-geographic Province, which is considered a high-risk province for marten habitat."[292] It also acknowledges that "ADF&G does not have population data for marten on Wrangell Island or

[286] *Id*. 110 (emphasis added).

[287] Smith Vole Comments at 3.

[288] *See, e.g.*, 2008 Amended Forest Plan FEIS at 2-48, 3-196 to 3-197, 3-248 to 3-250.

[289] *Id*. at 2-48.

[290] DEIS at 83.

[291] *Id.* at 110.

[292] *Id*. at 76.

within [Game Management Unit] 3."[293] The agency, however acknowledges "the past nine decades of population decline in [Game Management Unit] 3."[294]

The DEIS, however, fails to disclose that Richard Lowell (ADF&G area wildlife management biologist for Game Management Unit 3), expressed specific concerns regarding the status of marten on Wrangell:

> After reviewing the [Wrangell Ranger District] road density information provided by Melissa Cady, and following subsequent GIS analysis, the department has identified two islands within the [Wrangell Ranger District] where existing road conditions (no action alternative) give rise to concerns about the potential for excessive marten mortality. These include Wrangell Island and Zarembo Island.
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> . . .
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> In the case of Wrangell Island our concerns center in large part on the fact that approximately 61 percent of the island's overall land area (including portions of some nondevelopmental LUDs) remain accessible within 0.9 miles of existing roads. Based on extensive marten research conducted in similar habitat on Chichagof Island, the limited amount of refugia on the south and east sides of Wrangell Island is likely to support at most a dozen or so marten home ranges. The combination of high road density, limited amounts of roadless refugia, and the potential for high trapping pressure give rise to concerns about the potential for overharvest of marten. While the marten population on Wrangell Island may not go extinct in the short term there is potential for the island's marten population to become severely depressed. Systematic surveys would be extremely valuable for better evaluating population status and monitoring mortality rates of marten on Wrangell Island.[295]

Lowell made it clear that although "the concerns expressed here center in large part on relatively high road densities and limited amounts of roadless refugia for martens, reductions in carrying capacity associated with the loss of old growth habitat also represent a contributing factor."[296]

The DEIS fails to disclose the opinions of this expert, including his concerns regarding the possibility of extinction of marten on Wrangell Island. The DEIS also ignores the fact that he

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[293] *Id*.

[294] *Id*.

[295] DEIS PR 634_0153 at 00895 to 00896 (R. Lowell, ADF&G, Letter to Q. Smith, Wrangell Ranger District).

[296] *Id*. at 00895.

recommends a population survey to determine the marten population and mortality rates. The 2008 Amended Forest Plan directs that: "If existing information is lacking, surveys for endemic mammals may be necessary prior to any project that proposes to substantially alter vegetative cover (e.g., road construction, timber harvest, etc.). Surveys are necessary only where information is not adequate to assess project-level effects."[297] Here, the ADF&G area wildlife management biologist for Game Management Unit 3 has called for such a survey, but the Forest Service ignores that recommendation without explanation. The agency must respond to these concerns and conduct the necessary survey work to understand the adverse impacts the Wrangell Island Project would have on marten. To do otherwise, the agency would act contrary to NFMA, the 2008 Amended Forest Plan, and NEPA.

The Wrangell Island Project raises additional NFMA infirmities. It fails to comply with the 2008 Amended Forest Plan, which directs the agency "to provide and conserve habitat to assist in maintaining long-term sustainable marten populations."[298] The agency fails to explain whether the marten population is, and will be, sustainable after the Wrangell Island Project. Instead, the agency simply offers the unsupported conclusion: "Although there are effects to martins [*sic*], they would still continue to persist on Wrangell Island."[299] Persistence is not the threshold established in the 2008 Amended Forest Plan. Additionally, the Forest Service fails to explain how it is ensuring the viability of the marten in light of the various subspecies and their differential distribution across the Tongass.

For all of these reasons, the Wrangell Island Project raises serious NEPA and NFMA concerns regarding the project's adverse impacts on marten.

VII. BEARS

The DEIS fails to adequately evaluate impacts from the Wrangell Island Project on black bears given the adverse impacts of logging and road construction. The DEIS also ignores the fact that ADF&G has expressed repeated and significant concern regarding the loss of old-growth habitat in Game Management Unit 3.[300] For example in 2014, ADF&G biologists explained:

> We remain concerned about the extensive habitat changes occurring throughout the unit due to logging. [ADF&G] has estimated that of the 3,000 mi^2 of terrestrial habitat in Unit 3, about 1,500 mi^2 is forested. More than 129,000 acres of forested habitat in Unit 3 have been logged to date. As a result, timber harvest poses the most serious threat to black bear habitat in the unit over the long term. Black bears are able to exploit increases in forage in early-successional plant communities immediately after logging and may temporarily benefit from clear-cutting. However, this

[297] 2008 Amended Forest Plan at 4-97 (WILD1.XIX.A.1).

[298] *Id*. at 4-96 (WILD1.XVIII.A).

[299] DEIS at 96.

[300] *Id.* at 98-100 (no mention of ADF&G or its concerns).

> food source is lost approximately 20-25 years postlogging with canopy closure, and second-growth forests provide little bear habitat. Precommercial thinning and pruning of and second-growth stands can extend the short-term benefits to bears, but the long-term effects of logging will be detrimental. Large clearcuts on Mitkof, Wrangell, and Kupreanof Islands will diminish in value as bear habitat over the next few decades (Suring et al. 1988). The proliferation of roads associated with logging is also of concern as roads increase human access and make bears increasingly vulnerable to harvest.[301]

ADF&G's experts pointed to the decline in bear harvest, as a troubling indicator of the bear population in Game Management Unit 3:

> Unit 3 hunter harvests ranged from 177 to 185 bears annually during this report period. The average annual harvest of 181 bears annually during this report period was well below the preceding 10-year average (RY00–RY09) of 229 bears annually. The 177 bears killed by hunters in RY10 represent the second lowest annual harvest since the 1992–1993 season.[302]

ADF&G's concerns, however, go beyond the decline in the total numbers of bears being killed. For example, the bears are smaller: "During this report period, the average male skull size ranged from 17.8 inches to 18.1 inches, well below the management objective of 18.5 inches (Table 3)."[303] Further, "[t]he average age of harvested males . . . was below the preceding 5-year average."[304] The male to female ratio of over 4:1 was above the management objective of 3:1.[305]

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[301] R. E. Lowell, Unit 3 Black Bear Management Report at 6-1, *in* Black Bear Management Report of Survey and Inventory Activities 1 July 2010–30 June 2013, Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-5 (P. Harper and L. A. McCarthy eds., 2014) (2014 Black Bear Management Report).

[302] *Id.* at 6-8 (internal referenced omitted), 6-13 to 6-14, Tbl. 1. Their findings reflect a continuing trend. Elsewhere ADF&G reported:

> The Unit 3 black bear harvest steadily declined from 232 bears in 2006 to 169 in 2009. The unitwide harvest of 169 bears in 2009-10 was the lowest since 1992-93, and the averages annual harvest of 200 bears during this report period was well below the preceeding 10-year average of 254 bears annually.

R. E. Lowell, Unit 3 Black Bear Management Report at 105, *in* Black Bear Management Report of Survey and Inventory Activities 1 July 2007–30 June 2010, Alaska Department of Fish and Game, Project 17.0 (P. Harper ed., 2011) (2011 Black Bear Management Report).

[303] 2014 Black Bear Management Report at 6-8 (2014).

[304] *Id.*

[305] *Id.*

These concerns led ADF&G to conclude:

> Timber harvest continues to pose the most serious threat to black bear habitat in the unit. Clearcut logging reduces habitat diversity associated with old growth forests and eliminates denning trees. Although postlogging increases in berry production, primarily *Vaccinium* sp., may contribute to short-term bear population growth, this forage source will be lost as second growth stands regenerate and the canopy closes. Roads associated with logging increase human access and can make bears increasingly vulnerable to harvest. The long-term effects of logging will be detrimental to black bears. Roads associated with logging increase human access and can make bears increasingly vulnerable to harvest.[306]

ADF&G identified the need for more research to better understand the impacts of logging on the black bear population:

> [T]o ensure that the bear population is managed on a sustained yield basis, additional research is needed to estimate the black bear population in the unit, particularly on Kuiu and Kupreanof Islands. . . . . A better understanding of the short- and long-term impacts of clearcut logging on black bear populations is needed.
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> . . .
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> In light of a declining harvest trend and growing concern about a potential population decline, ensuring that black bear populations are managed within sustainable harvest limits will remain a formidable challenge for wildlife managers.[307]

The DEIS fails to acknowledge any of ADF&G's concerns.[308] The Forest Service also failed to conduct additional research to understand the adverse consequences of the historical and continued logging on Wrangell Island. Indeed, the DEIS section on impact on bears only cites two scientific studies and one of them is from 1976.[309] Simply put, the DEIS's analysis of the impacts on bears is unacceptable.

Finally, the DEIS explains that "[p] referred habitats by bears, which include coastal, estuarine, and riparian areas, are protected by the Forest Plan conservation strategy. These areas support

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[306] ADF&G, Species Management Report, Chapter 6: Black Bear Management Report at 6-10 (2014) (emphasis added).

[307] 2011 Black Bear Management Report at 105.

[308] DEIS at 98-100.

[309] *Id*. at 98.

salmon which are an important component to a bear's diet."[310] The DEIS, however, does not disclose that the Forest Service's proposed amendment to the 2008 Amended Forest Plan will eliminate many of those key conservation measures. The Forest Service must conduct this analysis and describe the resulting impacts on bears in the FEIS.

With regard to NFMA, the Forest Service must update its analysis and conduct the necessary research that ADF&G recommended before it approves logging even more old-growth habitat. To do otherwise, the agency would violate NFMA and the other statutes governing the agency obligation to balance wildlife protection with logging objectives.

VIII. QUEEN CHAROLETTE GOSHAWKS

The DEIS wholly fails to disclose or examine the serious risks to goshawks on the Tongass, either the pre-existing risks or the ways in which the various alternatives would aggravate them, in any fashion that would alert the public or decision-makers to them. In fact, the DEIS offers only two paragraphs to describe the goshawks' biological and ecological needs.[311] As explained below, it also fails to reference most of the scientific literature discussed in this section of the comment letter. The FEIS must correct these deficiencies.

A. Goshawks Depend On Old-Growth Forest Habitat.

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 . . . ."[312] 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 . . . . 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."[313] Canopy cover also protects goshawks and their nestlings from avian predators such as great horned and barred owls, and bald eagles.[314]

Importantly, in Southeast Alaska, goshawks are associated with a very particular forest type: "very highly to moderately productive old-growth forest" (250 years old or older).[315] Nests are

[310] *Id*. at 98.

[311] *See id*. at 74-75.

[312] DEIS PR 634_0683 (U.S. Fish and Wildlife Service, Alaska Region, Juneau Fish and Wildlife Office, Queen Charlotte Goshawk Status Review) at 35 (Apr. 13, 2007)) (USFWS Goshawk Review).

[313] *Id.* at 64.

[314] *Id.* at 67, 107-08.

[315] *See* 2008 Amended Forest Plan AR 603_0150 at 37, 70, Tbl. 25 (G. C. Iverson *et al.*, *Conservation Assessment for the Northern Goshawk in Southeast Alaska* (Nov. 1996)) (finding "a combined 58 percent of all habitat use occurring in these cover types") (Goshawk Conservation Assessment).

"typically located in tall trees, within high-volume forest stands with relatively high canopy cover."[316] They spend significantly less time in low productivity forest (approximately nine percent)[317] and actively avoid clear-cuts, nonforested areas, and mature sawtimber (approximately 75- to 150-year old stands).[318] "The amount and distribution of productive old-growth forest (especially the moderate to very high volume components), mature sawtimber, and riparian and beach zones are likely to set a limit on goshawk distribution and abundance."[319]

More specifically, as noted goshawk expert, Dr. Smith explained in his comments on the Draft Amended Forest Plan, "three critical spatial components of the nesting home range have been characterized: nest area, post-fledging family area (PFA), and foraging area."[320] Goshawk pairs have multiple nest areas (two to eight) and use nest areas for more than a year, but they can be used intermittently for decades.[321] Experts recommended the breeding home range of each goshawk pair have at least three nest areas, as well as three replacement nest areas.[322] Post-fledging family areas are portions of the breeding home ranges used by adults and juveniles after young birds leave the nest.[323] These areas must afford young birds protection from predators and sufficient prey to sustain them as they develop.[324] These areas "should have overstories with at least 50 percent canopy cover and well-developed herb and shrub understories, as well as key habitat features essential to the life histories of the goshawk prey species."[325] Goshawks' foraging habitat must support a variety of prey species, requiring "an uneven-aged silvicultural system, which produces a mosaic of different-aged stands . . . rather than regeneration harvest, such as clear-cuts, that remove the entire canopy and result in a single, uniform and dense canopy for decades following harvest."[326] Goshawks foraging areas reflects the majority of

[316] The Shipley Group, Goshawk Survey Soule River Watershed Southeast Alaska 26-28 (July 2009).

[317] Goshawk Conservation Assessment at 37, Tbl. 9.

[318] *Id*. at 34, Tbl. 7, 36-37.

[319] *Id*. at 63.

[320] W. Smith, Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Northern Goshawk Populations at 3 (Feb. 2016) (citing Reynolds et al. 1992) (Smith Goshawk Comments).

[321] *Id*. (citing Reynolds et al. 1992).

[322] *Id*. (citing Reynolds et al. 1992).

[323] *Id*. (citing Reynolds et al. 1992).

[324] *Id*.

[325] *Id*. (citing Reynolds et al. 1992).

[326] *Id*. at 4 (citing Nowacki & Kramer 1997).

breeding home range.[327] Each of these three types of habitat "need[s] to be considered simultaneously in land-use planning or mitigation."[328]

The DEIS fails to address any of these considerations.[329] The FEIS must correct these failings.

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

As explained below, goshawks in Southeast Alaska are at risk from both natural and anthropogenic factors, described below, that have resulted in extremely large territories, presumed increased risk factors, and low goshawk numbers.

1. Goshawks have come to depend upon 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 logging of 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 (11,120 acres) for females, and 5,900 hectares (48,200 acres) for males.[330] One male breeding season use area was radio-tracked nearly 19,500 hectares (47,000 acres).[331] By contrast, in the rest of North America, breeding-season ranges average between 570 and 3,500 hectares.[332] Year-round use areas in Southeast Alaska are vast, averaging nearly than 16,000 hectares (up to 67,000 hectares) for males, and more than 50,000 hectares (up to 180,000 hectares) for females.[333]

As the U.S. Fish and Wildlife Service (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:

[327] *Id*. at 6.

[328] *Id*. at 5 (citing Reynolds et al. 2006, Northern Goshawk *Accipiter gentilis laingi* Recovery Team 2008).

[329] *See, e.g.*, DEIS at 74-75, 87-91.

[330] 2008 Amended Forest Plan AR 603_0815 at 26-27, Tbls. 3 & 4 (C. Flatten *et al.*, Alaska Department of Fish and Game, Northern Goshawk Monitoring, Population Ecology and Diet on the Tongass National Forest (2001)) (Flatten).

[331] *Id.* at 27, Tbl. 4.

[332] USFWS Goshawk Review at 34 (citing to Squires and Reynolds 1997).

[333] Flatten at 26-27, Tbls. 3 & 4; *see also* Goshawk Conservation Assessment at PDF 37-38 (recording multiple males and females using areas larger than 400,000 acres (162,000 hectares)).

> 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.[334]

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."[335] A Forest Service report concluded more than 15 years ago that "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 success, and be less resilient to further stress . . . ."[336] 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"[337] and ranges tend to be at their largest.[338]

Again, the DEIS fails to address these spatial considerations. The FEIS must correct this failing.

2. 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, potentially genetically 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."[339]

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

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[334] USFWS Goshawk Review at 66.

[335] *Id.*

[336] Goshawk Conservation Assessment at 65.

[337] USFWS Goshawk Review at 41 (citing to Flatten et al. 2002, Titus et al. 2002); *see also id.* at 55 ("Most adult mortality in Southeast Alaska and on Vancouver Island occurs in late winter (Titus et al. 2002, McClaren 2003a), 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 2003a)").

[338] *Id.* at 33-34.

[339] USFWS Goshawk Review at 8-9.

Act).[340] 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).

In fact, the USFWS figure likely overstates the number of reproductive pairs in Southeast Alaska, putting local birds in an even worse position than the agency reports. USFWS based its population estimate on studies done by Schempf and Woods (2000) and Flatten *et al.* (2001).[341] Schempf and Woods estimated that the Tongass National Forest contained between 580 and 747 nesting territories.[342] Flatten *et al.* (2001) used broadcast and telemetry surveys to determine that, on average, approximately 45 percent of nesting territories are occupied in any given year.[343] Applying Flatten'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.[344] 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.[345]

However, much of the area that 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."[346] In contrast, both the Goshawk Conservation Assessment and Doyle concluded that, to be suitable, at least half of a bird's territory probably needed to be covered in old-growth forest.[347] The Forest Service appears to accept these conclusions in principle.[348]

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[340] *See* 77 Fed. Reg. 45,869, 45,887-88 (Aug. 1, 2012); 72 Fed. Reg. 63,123, 63,128 (Nov. 8, 2007).

[341] *Id*. at 63,127-28; *see also* P. Schempf & T. Woods, *Summary of Status of Queen Charlotte Goshawk Remand* (Feb. 23, 2000) (Schempf & Woods); Flatten.

[342] 72 Fed. Reg. at 63,127.

[343] *Id*. at 63,127-28.

[344] *Id*.

[345] *Id*.

[346] Schempf & Woods at 6 (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).

[347] *See* Goshawk Conservation Assessment at 37 ("a strong pattern for selection of very high to moderately productive old-growth forest with a combined 58 percent of all habitat use occurring in these cover types"); F. Doyle, *Breeding Success of the Goshawk (A. g. laingi) on Haida Gwaii/Queen Charlotte Islands: Is the Population Continuing to Decline* at 33 (Mar. 2005) (Doyle) ("[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"). Doyle defined "mature" forest as 81-250 years old, and "old" forest as more than 250 years old. Doyle at 7.

[348] *See* Big Thorne FEIS at 3-132 to 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).[349] 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).[350] 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.[351]

Further, due to continued logging of old-growth, it is highly probable that the Southeast Alaska population is getting smaller. The Tongass National Forest reported having logged 6,996 acres between fiscal years 2007 and 2012.[352] And in addition to federal logging, habitat liquidation on other holdings has been considerable.[353] 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 given lag times in population responses, particularly if a viability threshold has been crossed. As USFWS has explained, "goshawk populations may continue to decline for several years after logging 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."[354]

The DEIS fails to evaluate the consequences of the Wrangell Island Project on the population of goshawks on Wrangell Island in any credible way. It asserts:

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[349] 77 Fed. Reg. at 45,887.

[350] *See* USFWS, Alaska Region, Juneau Fish and Wildlife Office, Updated Appendices Queen Charlotte Goshawk Status Review at 7, Tbl. A-9 (May 2010).

[351] D. Crocker-Bedford, Interagency Viable Population Committee for Tongass Land Management Planning, Conservation of the Queen Charlotte Goshawk in Southeast Alaska at 4 (May 5, 1994) (Crocker-Bedford).

[352] *See* U.S. Forest Service, 2012 Annual & Five Year Monitoring and Evaluation Report at 8 (May 2013).

[353] *See, e.g.*, USFWS Goshawk Review at 81 ("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 populations.").

[354] 72 Fed. Reg. at 63,136.

> Cumulative reductions in nesting and foraging habitat on Wrangell Island could result in the local expansion of individual goshawk home ranges, potentially leading to a reduction in breeding density. Effects would be greatest under Alternative 2. However, given that goshawks are highly mobile and that breeding density is currently low on the Tongass National Forest, the effects of the Wrangell Island Project in combination with past, present, and foreseeable activities would result in effects to goshawks on Wrangell Island. Wrangell Island would continue to provide suitable habitat and the Queen Charlotte goshawk would continue to persist at current levels.[355]

The Forest Service's suggestion that "the effects of the Wrangell Island Project in combination with past, present, and foreseeable activities would result in effects to goshawks on Wrangell Island" is remarkable for its failure to provide any useful information or conclusion.[356] It is also completely unsubstantiated to implicitly admit the agency does not know the current population of goshawks on Wrangell Island, but then claim that unknown population should continue to persist. The FEIS must correct these fundamental failings.

C. The DEIS Does Not Disclose the Cumulative Impacts on Goshawks Given the Agency's Plan to Amend the Forest Plan.

In assessing cumulative impacts, the DEIS fails to consider the impacts caused by the significant changes proposed in the newly released Amended Forest Plan.

The 2008 Amended Forest Plan classifies areas within the beach[357] and estuary fringe[358] "as unsuitable for timber harvest."[359] It establishes several important objectives regarding these areas:

> 4. To maintain an approximate 1,000-foot-wide beach fringe of mostly unmodified forest to provide important habitats, corridors, and connectivity of habitat for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with the maritime-influenced habitat. Old-growth forests are managed for near-natural habitat conditions (including natural disturbances) with little evidence of human-induced influence on the ecosystem.

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[355] DEIS at 91.

[356] *Id*.

[357] "The beach fringe is an area of approximately 1,000 feet slope distance inland from mean high tide around all marine coastline." 2008 Amended Forest Plan at 4-4 (BEACH1.I.B.1).

[358] "The estuary fringe is an area of approximately 1,000 feet slope distance around all identified estuaries." *Id*. at 4-4 (BEACH1.I.C.1).

[359] *Id*. at 4-5 (BEACH2.II.A.6.).

> 5. To maintain an approximate 1,000-foot-wide estuary fringe of mostly undisturbed forest that contributes to maintenance of the ecological integrity of the biologically rich tidal and intertidal estuary zone. Habitats for shorebirds, waterfowl, bald eagles, goshawks, and other marine-associated species are emphasized. Old-growth conifer stands, grasslands, wetlands, and other natural habitats associated with estuary areas above the mean high tide line are managed for near-natural habitat conditions with little evidence of human-induced disturbance.[360]

The Forest Service concluded that the "beach fringe was a very key feature of the overall Tongass conservation strategy," particularly with regard to goshawks.[361] As Chris Iverson, the author of Appendix N to the 1997 FEIS, explained:

> The most compelling argument for this extended beach fringe is that this zone of 1000 feet from the shoreline is a landscape region significantly selected by goshawks, for foraging we presumed, during our habitat selection analysis (see Goshawk [Conservation] Assessment, Figure 9, pages 52-53). When the leadership (Forest Supervisors, RF, IDT Leader) were presented with this graph and statistic -the decision was made to extend the beach fringe to 1000' to provide additional risk reduction and confidence in goshawk conservation to contribute to a not warranted decision by the FWS for the listing petition that they were considering at the time.[362]

The agency's new Amended Forest Plan deletes the portions of the standards and guidelines that prevented logging in the beach (and estuary) fringe.[363] In their place, the agency proposes a Forest-wide standard that prevents most old-growth logging in these areas (with several exceptions that do not count towards the projected timber sale quantity),[364] but now allows second-growth logging.[365] The DEIS, however, fails to examine the impacts of this change on the underlying conclusions regarding cumulative effects on goshawks.

The DEIS also never examines the cumulative impacts on the "three critical spatial components of the nesting home range:"[366] nest area, post-fledging family area, and foraging area. As Dr. Smith made clear:

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[360] *Id*. at 4-4 (BEACH1.I.A.).

[361] 2008 Amended Forest Plan AR 603_1127 at 2 (C. Iverson).

[362] *Id.*

[363] 2016 Plan Amendment PR 769_01_000088 at 4-5 (Redlined Version of Draft Forest Plan).

[364] 2016 Amended Tongass Forest Plan at 5-13 (June 2016).

[365] *See id*. at 5-4 to 5-5.

[366] Smith Goshawk Comments at 3.

First, spatially explicit analyses of contributions to northern goshawk breeding-season habitat revealed that conservation measures of the Tongass Land and Resource Management Plan contribute about half the secure habitat recommended for post-fledging areas of breeding pairs in the southern portion of this species range (Reynolds et al. 1992) and was 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 km2) that surrounded each nest. This is because much of the habitat across the landscape has been clear-cut-logged and half the remaining choice habitat is in the Development land-use designation available for timber harvest.

. . .

Secondly, guidelines developed for northern goshawk populations in the southwestern United States may underestimate habitat needed by breeding pairs in Southeast Alaska.

. . .

In Southeast Alaska, the predominant (frequency and biomass) prey items during the breeding season (Lewis et al. 2006) are bird and mammal species that are most abundant, or occur exclusively, in productive old-growth forests (Iverson et al. 1996,Smith et al. 2001, 2004, 2005). Consider further that the mammal fauna of Southeast Alaska is depauperate (Smith 2005); few mammal species exclusively occur in low-volume or managed forests of Southeast Alaska (Smith et al. 2001, Smith and Nichols 2004); and the structure of dense second-growth stands effectively renders prey unavailable to foraging goshawks (Reynolds et al 1992, 2006). Avian communities in managed forests include few, if any, additional prey for northern goshawks (Smith et al. 2001). Thus, breeding pairs in managed landscapes of Southeast Alaska likely rely almost entirely on productive old-growth forests as foraging and nesting habitat. That breeding pairs in managed landscapes of Southeast Alaska depend on productive old-growth forests to meet life-history needs was reflected in the findings of compositional analyses and radio-telemetry studies, both of which determined that northern goshawks strongly selected medium- and high-volume old-growth forests, and avoided recently managed or non-forested habitats [Goshawk Conservation Assessment].[367]

[367] Smith Goshawk Comments at 9-10.

These challenges are exacerbated by the Forest Service's choices for second-growth management that are reflected in the agency's newly released 2016 Amended Tongass Land Management Plan. "The potential for second-growth stands to become useable habitat over the Tongass planning horizon is limited because unmanaged second-growth typically requires at least 300 years following disturbance to develop old-forest features (Nowacki and Kramer 1998)."[368] Rather than manage second-growth in a way that returns it to old-growth characteristics, the Forest Service is targeting second-growth for commercial purposes in critical old-growth reserves, Beach-Estuary Fringe, and Riparian Management Areas. As explained above, these areas were set aside as reserves, in part, because they represented important habitat and they were considered critical to the long-term viability of goshawks.

The FEIS cannot ignore the fact that the Forest Service is poised to compromise fundamental elements of the goshawk conservation strategy. The agency must analyze those changes and the resulting adverse impacts

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[368] *Id*. (emphasis omitted).

For the reasons stated above, the Wrangell Island Project accomplishes nothing more than miring Southeast Alaska in the destructive and controversial practices of industrial-scale old-growth logging. As this project demonstrates with vivid clarity, the Tongass timber program is economically and environmentally unsustainable and, as a result, the Forest Service should adopt the no action alternative. If the agency moves ahead despite the overwhelming adverse impacts, it must correct the deficiencies described above.

Respectfully,

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DOCUMENTS CITED IN SOUTHEAST ALASKA CONSERVATION COUNCIL *ET AL.*'S COMMENTS ON THE WRANGELL ISLAND PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT (July 18, 2016)

Alaback, P. *et al.*, Letter to Deputy Forest Supervisor Jason Anderson (May 12, 2015)

Alaback, P.B. and J.C. Tappeiner II, *Response of western hemlock (Tsuga heterophylla) and early huckleberry (Vaccinium ovalifolium) seedlings to forest windthrow*, Can. J. For. Res. 21: 534-539 (1991)

Alaska Department of Fish and Game (ADFG), Feasibility Assessment for Increasing Sustainable Harvest of Sitka Black-Tailed Deer in a Portion of Game Management Unit 3 (Oct. 2012)

ADFG, Operational Plan for Intensive Management of Sitka Black-Tailed Deer in a Portion of Game Management Unit 3 (Feb. 2013)

ADFG, Sitka Black-tailed Deer Harvest Report, Southeast Alaska, 2007 (2007)

ADFG, Sitka Black-tailed Deer Hunting in Alaska, Harvest Statistics (1997-2014)

ADFG, Species Management Report, Chapter 6: Black Bear Management Report (2014)

ADFG, Species Profile, Sitka Black-Tailed Deer (*Odocoileus hemionus sitkensis*): Status, Trends, and Threats

Alaska Wilderness League *et al.*, Comments regarding Tongass Land Management Plan Amendment (Feb. 22, 2016)

Anderegg, W. R. L. *et al.*, *Awareness of Both Type 1 and 2 Errors in Climate Science and Assessment*, 95 BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY 1445 (2014)

Barrett, T. M., Storage and Flux of Carbon in Live Trees, Snags, and Logs in the Chugach and Tongass National Forests (Jan. 2014)

Brysse, K. *et al.*, *Climate Change Prediction: Erring on the Side of Least Drama?*, 23 GLOBAL ENVT'L CHANGE 327 (2013)

Bschor, D., Memorandum to Forest Supervisor Re: Time Limited Shipment of Unprocessed Hemlock and Sitka Spruce (Aug. 8, 2008)

Bschor, D., Memorandum to Forest Supervisor Re: Extension of Limited Shipment of Unprocessed Hemlock and Sitka Spruce (Nov. 10, 2009)

Bureau of Land Management, Western Oregon Draft Resource Management Plan/Environmental Impact Statement, Volume 2 (2015) (excerpt)

Cascadia Wildlands *et al.*, Comments on Big Thorne Project (BTP), Exhibit 2b

Clarke, C., Alaska Department of Natural Resources, Letter to Forrest Cole, U.S. Forest Service, Re. Wrangell Island 10 Year Timber Sale (Apr. 8, 2009)

Crocker-Bedford, D. Coleman, Interagency Viable Population Committee for Tongass Land Management Planning, Conservation of the Queen Charlotte Goshawk in Southeast Alaska (May 5, 1994)

Dale, Robin, U.S. Forest Service, Email to Holly Harris, Earthjustice, Re. Wrangell Island Planning Record (July 1, 2016)

Daniels, J. *et al.*, Tongass National Forest Timber Demand: Projections for 2015 to 2030 (April 2016)

Declaration of Joseph R. Mehrkens, *In re. Appeal of the Tongass National Forest Revised Land and Resource Management Plan (Plan Amendment), Final Environmental Impact Statement, and Record of Decision For this Revised Land and Resource Management Plan, Tongass National Forest, Alaska* (May 14, 2008)

DellaSala, D. A. *et al.*, *Climate Change May Trigger Broad Shifts in North America's Pacific Coastal Rainforests*, REFERENCE MODULE IN EARTH SYSTEMS AND ENVIRONMENTAL SCIENCES (2015)

DellaSala, D. A. *et al*., *Temperate and Boreal Rainforests of the Pacific Coast of North America, in* TEMPERATE AND BOREAL RAINFORESTS OF THE WORLD: ECOLOGY AND CONSERVATION (D. A. DellaSala ed., 2011)

Doyle, F., *Breeding Success of the Goshawk (A. g. laingi) on Haida Gwaii/Queen Charlotte Islands: Is the Population Continuing to Decline* (Mar. 2005)

Executive Office of the President, The President's Climate Action Plan (June 2013)

Field, C. B. & J. Kaduk, *The Carbon Balance of an Old-Growth Forest: Building Across Approaches*, 7 ECOSYSTEMS 525 (2004)

Gray, A. N. & T. R. Whittier, *Carbon stocks and Changes on Pacific Northwest National Forests and the Role of Disturbance, Management, and Growth*, 328 FOREST ECOLOGY & MANAGEMENT 167 (2014)

Hanley, Thomas A. *et al*., Precommercial Thinning: Implications of Early Results From the Tongass-Wide Young-Growth Studies Experiments for Deer Habitat in Southeast Alaska (May 2013)

Harmon, M. E. *et al.*, *Effects on Carbon Storage of Conversion of Old-Growth Forests to Young Forests*, 247 SCIENCE 699 (1990)

P. Harper, ed., Alaska Department of Fish and Game, Division of Wildlife Conservation, Wildlife Management Report, Black Bear Management Report (2011)

Headwaters Economics, The Tongass National Forest and the Transition Framework: A New Path Forward? (Nov. 2014)

In Re: Big Thorne Project and 2008 Tongass Forest Plan, Forest Plan Appellants' Opening Brief, Nos. 15-35232, 15-35233, 15-35244 (9th Cir. July 2, 2015)

In Re: Big Thorne Project and 2008 Tongass Forest Plan, Answering Brief of the Federal Defendants, Nos. 15-35232, 15-35233, 15-35244 (9th Cir. Aug. 20, 2015)

In Re: Big Thorne Project and 2008 Tongass Forest Plan, Forest Plan Appellants' Reply Brief, Nos. 15-35232, 15-35233, 15-35244 (9th Cir. Sept. 8, 2015)

Interagency Working Group on the Social Cost of Carbon, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866* (revised July 2015)

Intergovernmental Panel on Climate Change, *Climate Change 2014: Mitigation of Climate Change*, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change at 845 (O. Edenhofer *et al.* eds, 2014)

J. E. Janisch & M. E. Harmon, *Successional changes in live and dead wood carbon stores: implications for net ecosystem productivity*, 22 TREE PHYSIOLOGY 77 (2002)

Kirchoff, M., Comments on Draft Tongass Advisory Committee Recommendations (Apr. 19, 2015)

Krankina, O. N. *et al.*, *High-Biomass Forests of the Pacific Northwest: Who Manages Them and How Much is Protected?*, 54 ENVIRONMENTAL MANAGEMENT 112 (2014)

Leighty, W. W. *et al.*, *Effects of Management on Carbon Sequestration in Forest Biomass in Southeast Alaska*, ECOSYSTEMS 1051 (2006)

Lorenz, K. & R. Lal, CARBON SEQUESTRATION IN FOREST ECOSYSTEMS (2009)

Luyssaert, S. *et al.*, *Old-growth Forests as Global Carbon Sinks*, 455 NATURE 213 (2008)

Mackey, B. *et al*., Policy Options for the World's Primary Forests in Multilateral Environmental Agreements, 8 CONSERVATION LETTERS 139, Supp. 14 (2015)

Marvin, M. *et al.*, Letter to Forrest Cole, U.S. Forest Service, Re. Tongass National Forest Plan Amendment

Matsuoka, S. *et al.*, *Succession of bird communities in young temperate rainforests following thinning*, J. Wildlife Management 76(5):919-931 (2012)

McCoy, Karin *et al.*, *Assessing Population Estimation Protocols for Sitka Black-Tailed Deer Using DNA from Fecal Pellets*, Final Wildlife Research Report (2014)

McDowell Group, *Economic Impact of Visitors to Southeast Alaska 2013-14* (Feb. 2015)

Mooney, C., *The world's climate change watchdog may be underestimating global warming*, WASHINGTON POST (Oct. 30, 2014)

Myers, E. F, N. J. Walker, M. D. Kirchhoff, and J. W. Schoen 2011. Highgrading on the Tongass National Forest: Implications of Pending Land Selections on Forest Diversity. Unpublished report. Audubon Alaska, Anchorage, AK 99501. 22 pp. (October 2011)

Niemi, E., Socioeconomic Comments: Timber Demand (Feb. 2016)

Pendleton, B., Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Jan. 11, 2012)

Pendleton, B., Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Feb. 20, 2013)

Pendleton, B., Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Feb. 28, 2014)

Pendleton, B., Memorandum to Forest Supervisor Re: Annual Review and Update to R10 Limited Export Policy (Apr. 21, 2015)

Pendleton, B., Memorandum to Forest Supervisor Re: Update to R10 Limited Export Policy for hemlock and Spruce (Jan. 7, 2011)

Ryan, M. G. *et al.*, *A Synthesis of the Science on Forests and Carbon for U.S. Forests*, in ISSUES IN ECOLOGY REPORT NUMBER 13 (Spring 2010)

Schempf, P. & T. Woods, *Summary of Status of Queen Charlotte Goshawk Remand* (Feb. 23, 2000)

Scherer, G., *Climate Science Predictions Prove Too Conservative*, SCIENTIFIC AMERICAN (Dec. 6, 2012)

Smith, W., Comments on the Wildlife Conservation Strategy as represented in the Proposed Land and Resource Management Plan (November 2015), and attachments

Smith, W., Comments on the Wrangell Island Timber Sale Project (July 2016)

Smith, W., Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Populations of Endemic Small Mammals (Feb. 2016) (Smith Small Mammals Comments), and attachments

Smith, W., Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Northern Goshawk Populations (Feb. 2016) (Smith Goshawk Comments), and attachments

Southeast Alaska Conservation Council, Letter to Earl Stewart, U.S. Forest Service, Re. Programmatic effects analysis needed for Alaska Region's modified export policy (Aug. 13, 2015)

Southeast Alaska Conservation Council, Letter to SWCA Environmental Consulting Re. Small Mill & Wildlife Alternative in Wrangell Island Project Draft EIS (July 25, 2011)

Southeast Conference, Southeast Alaska by the Numbers 2015 (Sept. 2015)

Southeast Conference, The Arts Economy of Southeast Alaska (Sept. 2014)

TCW Economics, *Economic Contributions and Impacts of Salmonid Resources in Southeast Alaska* (July 2010)

Taxpayers for Common Sense, Money Losing Timber Sales: Tongass National Forest (Mar. 2015)

The Shipley Group, Goshawk Survey Soule River Watershed Southeast Alaska (2009)

Thompson, I. *et al.*, FOREST RESILIENCE, BIODIVERSITY AND CLIMATE CHANGE, A SYNTHESIS OF THE BIODIVERSITY/RESILIENCE/STABILITY RELATIONSHIP IN FOREST ECOSYSTEMS, Secretariat of the Convention on Biological Diversity, Montreal, Technical Series No. 43 (2009)

Tongass Conservation Society & Greenpeace, Comments on the Wrangell Project EIS (Jan. 26, 2011)

Tongass Conservation Society v. Cole, No. 1:09-cv-00003 JWS, Order and Opinion (D. Alaska Dec. 7, 2009)

U.S. Department of Agriculture, News Release, USDA Pursues Jobs, Community Stability While Developing New Approach to Forest Management in Southeast Alaska (May 26, 2010)

U.S. Environmental Protection Agency, *EPA Fact Sheet: Social Cost of Carbon* (2015)

U.S. Fish & Wildlife Service, Alaska Region, Juneau Fish and Wildlife Office, Updated Appendices Queen Charlotte Goshawk Status Review (May 2010)

U.S. Forest Service, 2012 Annual & Five Year Monitoring and Evaluation Report (May 2013)

U.S. Forest Service, Big Thorne Project Final Environmental Impact Statement (June 2013)

U.S. Forest Service, Forest Service Handbook: FSH 2409.18 – Timber Sale Preparation Handbook (2002)

U.S. Forest Service, Issue Paper, *Tongass Limited Shipping Policy* (Feb. 2010)

U.S. Forest Service, Issue Paper, *Tongass Limited Shipping Policy* (Apr. 2011)

U.S. Forest Service, Issue Paper, *Tongass Limited Shipping Policy* (Apr. 2012)

U.S. Forest Service, Issue Paper, *Tongass Limited Shipping Policy* (Apr. 2013)

U.S. Forest Service, Issue Paper, *Tongass Limited Shipping Policy* (Apr. 2014)
U.S. Forest Service, Issue Paper, *Tongass Limited Export Policy* (Apr. 2015)

U.S. Forest Service, Rulemaking for Colorado Roadless Areas: Supplemental Draft Environmental Impact Statement (2015)

U.S. Forest Service, State of the Tongass National Forest – FY2011 (May 2012)

U.S. Forest Service, State of the Tongass National Forest – FY2012 (Apr. 2013)

U.S. Forest Service, State of the Tongass National Forest: FY2013 (Apr. 2014)

U.S. Forest Service, The State of the Tongass National Forest: Fiscal Year 2009 (June 2010)

U.S. Forest Service, Tongass Land and Resource Management Plan (June 2016)

U.S. Forest Service, Tongass Land and Resource Management Plan Amendment Draft Environmental Impact Statement (Nov. 2015)

U.S Forest Service, Tongass Land and Resource Management Plan Amendment Final Environmental Impact Statement (June 2016)

U.S. Forest Service, Tongass Proposed Land and Resource Management Plan (Nov. 2016)

U.S. Forest Service, Tongass National Forest FY 2010 Expenditures

U.S. Government Accountability Office, Tongass National Forest, Forest Service's Actions (2016)

Van Horne, B., *Density as a misleading indicator of habitat quality*, The Journal of Wildlife Management, 893-901 (1983)

Vermillion, R., Estimating Costs of the Tongass Timber Program (Dec. 2012)

Vose, J.M. *et al.*, eds. Effects of Climatic Variability and Change on Forest Ecosystems: A Comprehensive Science Synthesis for the U.S. Forest Sector, General Technical Report PNW-GTR-870 US Forest Service (2012)

Waldo, Thomas S., Earthjustice, Letter to Beth Pendleton, U.S. Forest Service, Re. Tongass Limited Export Policy (Mar. 21, 2016)

Woodford, Riley, Alaska Fish & Wildlife News, *Deer Hunting Forecast and "State of the Deer"* (Aug. 2014)

Zaborske, R.R and M.H. McClellan, *Understory vegetation development following commercial thinning in Southeast Alaska: preliminary results from the second-growth management area demonstration project*, *in* Beyond 2001: A Silvicultural odyssey to sustaining terrestrial and aquatic ecosystems (S. Parker & S. Hummel eds, 2002), Pages 74-82, Proceedings of a workshop in 2001 in Hood River, OR. U.S. Forest Service, Gen. Tech. Rep. PNW-GTR-546