

**SOUTHEAST ALASKA CONSERVATION COUNCIL
ALASKA WILDERNESS LEAGUE – CENTER FOR BIOLOGICAL DIVERSITY
DEFENDERS OF WILDLIFE – EARTHJUSTICE – GEOS INSTITUTE
NATURAL RESOURCES DEFENSE COUNCIL – SIERRA CLUB
WOMEN’S EARTH AND CLIMATE ACTION NETWORK**

August 30, 2016

VIA ELECTRONIC MAIL AND HAND DELIVERY

Beth Pendleton, Regional Forester
USDA Forest Service, Alaska Region
Attn: Tongass Objections
709 W. 9th Street
Juneau, AK 99801-1807
E: objections-alaska-regional-office@fs.fed.us

Re: Objection 2016 Amended Tongass Land Management Plan

Dear Ms. Pendleton:

Pursuant to 36 C.F.R. Part 219, Southeast Alaska Conservation Council, Alaska Wilderness League, Center for Biological Diversity, Defenders of Wildlife, Geos Institute, Natural Resources Defense Council, Sierra Club, Women’s Earth and Climate Action Network, and Earthjustice, hereby object to the June 2016 Amended Tongass Land Management Plan (the 2016 Amended Forest Plan), the associated Final Environmental Impact Statement (the FEIS), and the proposed Record of Decision (the Draft ROD). M. Earl Stewart, the Tongass Forest Supervisor, is the responsible official for the 2016 Amended Forest Plan, the FEIS, and the Draft ROD.¹

The Forest Service’s decision to adopt the 2016 Amended Forest Plan is misguided and unlawful, and should be reconsidered. First, the 2016 Amended Forest Plan fails to advance the Department of Agriculture’s visionary goal of “transitioning quickly away from timber harvesting in . . . old-growth forests.” In fact, it never transitions out of old-growth logging. This plan actually increases old-growth logging and allows thousands of acres of Tongass old-growth to be clear-cut and exported out of Alaska indefinitely. If the 2016 Amended Forest Plan encourages any investment whatsoever, it will be only in more industrial-scale, old-growth logging that is not environmentally or economically sustainable. Encouraging long-term investment in the existing subsidy and export dependent old-growth industry is the opposite of transitioning quickly out of it.

¹ See Draft ROD at 44.

Second, the 2016 Amended Forest Plan is unlawful because the Forest Service failed to comply with the National Forest Management Act (NFMA), the Tongass Timber Reform Act (TTRA), the Multiple-Use Sustained-Yield Act, and the National Environmental Policy Act (NEPA). As explained below, without detailed analysis and despite overwhelming objections by scientific experts (both public and private) from across the country, the Forest Service not only intends to continue the controversy of industrial-scale, old-growth logging indefinitely at significant risk to the region's wildlife, but now wants to clear-cut parts of the forest that the agency's own scientists have concluded for decades must be protected due to their ecological and environmental importance. Clear-cutting Tongass forests jeopardizes the region's fish and wildlife populations and ecosystems. It adversely affects tourism, recreation, and hunting and fishing, including subsistence uses and practices, across Southeast Alaska. It not only costs U.S. taxpayers tens of millions of dollars every year to subsidize the Tongass timber industry, but now the Forest Service is allowing 100 percent of Tongass trees to be shipped out of Alaska. Finally, logging Tongass old-growth squanders our country's most important opportunity to protect its forest carbon sinks and fulfill our commitment to the United Nations Framework Convention on Climate Change (the Paris Agreement).

For these reasons, 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.

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DESCRIPTION OF THE OBJECTING PARTIES

In 2015, the objecting parties submitted substantive comments on the 2015 Draft Tongass Land Management Plan (the Draft Amended Forest Plan) and the associated Draft Environmental Impact Statement (DEIS).² Previously, many of the objecting parties commented on and, in some cases, appealed timber sales implementing forest plans for the Tongass over the years. Several of them also commented on, appealed, and ultimately litigated the 2008 Amendment to the Tongass Land Management Plan (2008 Amended Forest Plan) and the Final Environmental Impact Statement (2008 FEIS).

For purposes of 36 C.F.R. § 219.54(c)(1), the objecting parties may be contacted at the names, addresses and telephone numbers indicated in the signature block. For purposes of 36 C.F.R. § 219.54(c)(3), Earthjustice is the lead objector.”

STATEMENT OF ISSUES, INCONSISTENCY, AND ILLEGALITY

As explained below, this objection addresses the 2016 Amended Forest Plan in its entirety, as well as the supporting FEIS and the Draft ROD. The specific issues of concern are addressed below.³

The objection identifies: (1) the various ways in which the 2016 Amended Forest Plan, the FEIS, and the Draft ROD are inconsistent with law, regulation, and policy; and, (2) how the Forest Service’s decision and supporting documents can be improved to correct the infirmities for purposes of 36 C.F.R. § 219.54(c)(6). As explained below, each substantive section also demonstrates the connection between specific sections of the DEIS Comment Letter, and any

² See Alaska Wilderness League, *et al.*, Letter to Earl Stewart, Tongass Forest Supervisor (Feb. 22, 2016) (the DEIS Comment Letter). Any documents cited in this objection will be hand-delivered to the Forest Service on August 30, 2016 (with the exception of statutes, regulations, Forest Service documents (forest plans, Forest Service Handbook, etc.), and documents cited in the planning documentation). See 36 C.F.R. § 219.54(b).

³ See generally 36 C.F.R § 219.54(c)(5).

specifically incorporated material,⁴ and/or explains that a specific issue arose after the opportunity for formal comment.⁵

FLAWED APPROACH TO THE AMENDMENT PROCESS

Despite the concerns raised in the DEIS Comment Letter, the 2016 Amended Forest Plan, the FEIS, and the Draft ROD demonstrate that the Forest Service continues to prioritize industrial-scale, export-dependent old-growth logging ~~over~~ the competing environmental and recreational goals without justification sufficient to support the agency's balancing of these goals."⁶ Indeed, the FEIS's range of alternatives is unchanged in response to comments addressing infirmities with the DEIS, and for this reason, suffers from the same infirmities raised in the DEIS Comment Letter.⁷ As explained below, the Forest Service inappropriately constrained its thinking and its analysis to advance one narrow interest—continuing to offer thousands of acres of Tongass old-growth that will be exported out of the region—despite the fact the region's economy has already transitioned away from industrial-scale, old-growth logging to industries that instead depend on leaving these ancient forests intact. In so doing, the agency offers an FEIS devoid of a meaningful analysis to inform the public or the decision-maker of the choices regarding the future of Tongass management.

Southeast Alaska's tourism, recreation, and fishing industries long ago supplanted industrial-scale logging as the region's main economic drivers. Tourism-related jobs, for example, account for 28 percent of employment⁸ and generate an annual \$1 billion economic benefit.⁹ The salmon

⁴ In the DEIS Comment Letter, groups incorporated other comment letters and materials either in whole or in part. *See, e.g.*, DEIS Comment Letter at 10 (incorporating Natural Resources Defense Council and Geos Institute, Letter to Earl Stewart, Tongass Forest Supervisor at Sec. I (Feb. 22, 2016)); *id.* at 41 n. 201 (incorporating W. Smith, Comments on the Wildlife Conservation Strategy as represented in the Proposed Land and Resource Management Plan (Feb. 2016) (Smith Conservation Strategy Comments)); *id.* at 56 n.272 (incorporating 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)); *id.* at 59 (incorporating W. Smith, Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Northern Goshawk Populations (Feb. 2016) (Smith Goshawk Comments)); *id.* at 70 n. 354 (incorporating W. Smith, Proposed Forest Plan Amendment Further Compromises Established Conservation Measures to Sustain Viable Populations of Endemic Small Mammals (Feb. 2016) (Smith Small Mammals Comments)).

⁵ *See* 36 C.F.R. § 219.54(c)(7).

⁶ *Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 808 (9th Cir. 2005).

⁷ *See* DEIS Comment Letter at 8-10.

⁸ McDowell Group, *Economic Impact of Alaska's Visitor Industry 2014-15 update* at 1, Fig. 1 (Apr. 2016) (McDowell Group 2016) (11,200 jobs); McDowell Group, *Economic Impact of Alaska's Visitor Industry 2013-14 update* at 1, Fig. 1 (Feb. 2015) (McDowell Group 2015) (10,800 jobs).

fishing industry contributes another \$1 billion annually to the regional economy,¹⁰ and the seafood industry generally is the largest private sector industry in Southeast Alaska, in terms of workforce size and labor income . . . account[ing] for 20 percent of the region’s average monthly employment during 2013 and 2014.”¹¹ In addition, in 2013, “[i]n terms of workforce earnings, the arts sector [wa]s nearly twice the size of the regional timber industry.”¹² Sustainable industries are Alaska’s future, but they depend on healthy watersheds, abundant fish and wildlife habitat, and scenic landscapes that old-growth timber sales, like those allowed under the 2016 Amended Forest Plan for the next 16 or more years, will destroy.

The Forest Service’s plan raises significant and pervasive environmental concerns, in large part, because it concentrates the continuing decade or more of old-growth logging in a portion of the Tongass that has already suffered some of the worst impacts from logging. As a result of this historical logging, the agency is already confronting the loss of sustainable wildlife populations and possibly the viability of entire species across the Tongass. Just recently, for example, the Forest Service concluded that the long-term viability of 24 wildlife endemic species on the Tongass, even without additional logging, “is unknown, but of increasing concern.”¹³

Additionally, the Forest Service is weakening the “Tongass Forest Plan Conservation Strategy” (Conservation Strategy)¹⁴ by changing the “Priority of Direction”¹⁵ among plan provisions and allowing second-growth logging in areas that have been protected for decades. These decisions are not only inconsistent with the Conservation Strategy and the scientific foundation regarding the agency’s decision to protected habitat and travel corridors on the Tongass, but the agency is making them over the universal objection of experts, and without any substantive analysis.

⁹ McDowell Group 2016 at 8, Tbl. 3; *see also* McDowell Group 2015 at 8, Tbl. 3.

¹⁰ TCW Economics, *Economic Contributions and Impacts of Salmonid Resources in Southeast Alaska* at 16 (July 2010) (“In addition to contributing to use values, the salmonid fisheries of southeast Alaska and hatchery operations contribute to economic activity in the region. Total output associated with the three fisheries and hatchery operations, which includes the additional rounds of economic activity resulting from the multiplier effect, is estimated at \$986.1 million. The total number of jobs directly and indirectly supported by southeast Alaska fisheries and hatchery operations are estimated at 7,282, and total personal income (wage earnings, profits, and other income) generated by these fisheries and hatchery operations is an estimated \$188.9 million.”).

¹¹ McDowell Group, *The Economic Value of Alaska’s Seafood Industry* at 14 (Dec. 2015); *see also* Southeast Conference, *Southeast Alaska by the Numbers 2015* at 4 (Sept. 2015).

¹² Southeast Conference, *The Arts Economy of Southeast Alaska* at 1 (Sept. 2014).

¹³ Forest Service, *Wrangell Island Project Draft Environmental Impact Statement* at 83 (May 2016) (Wrangell DEIS).

¹⁴ FEIS at 3-200.

¹⁵ 2016 Amended Forest Plan at 1-5.

In addition to the environmental damage logging causes, the Tongass timber program operates at massive economic losses to United States taxpayers. According to the U.S. Government Accountability 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.”¹⁶ These losses continue a decades-long drain on the public’s financial resources; from 1982-2012 the Forest Service spent \$1,193,521,560 more to log the Tongass than it received in timber revenues.¹⁷ The dire economic realities facing the Tongass timber program were demonstrated more recently when the Forest Service proposed a 65 million board feet (MMBF) timber sale project with 100 percent old-growth logging and every action alternative reflected an overwhelming economic loss based on the indicated advertised rate.¹⁸

I. THE FOREST SERVICE IS APPLYING THE PURPOSE AND NEED STATEMENT TOO NARROWLY; IT IS BROAD ENOUGH TO ACCOMPLISH THE SECRETARY’S DIRECTIVE THROUGH ALTERNATIVE MEANS.

As explained in the DEIS Comment Letter at pages 8 to 9, the Forest Service is interpreting the purpose and need statement in the FEIS too narrowly. The purpose and need for 2016 Amended Forest Plan is sufficiently broad to require the agency to examine a range of alternatives that accomplish the Secretary’s directive.

According to the FEIS, the purpose of the 2016 Amended Forest Plan is:

- Review lands within the plan area to determine suitability for timber production, especially young-growth timber stands.

¹⁶ U.S. Government Accountability Office, *Tongass National Forest, Forest Service’s Actions Related to Its Planned Timber Program Transition* at 7 (2016); 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.”); see generally U.S. General Accounting Office, *Forest Service Timber Costs, Linda M. Calhoun Letter to the Honorable Cynthia McKinney and the Honorable George Miller, U.S. House of Representatives* (Sept. 21, 2001); U.S. General Accounting Office, *Forest Service: Amount of Timber Offered, Sold, and Harvested, and Timber Sales Outlays, Fiscal Years 1992 Through 1997* (1999); U.S. General Accounting Office, *Forest Service: Distribution of Timber Sales Receipts, Fiscal Years 1995 Through 1997* (1998); 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) (Headwaters Report).

¹⁷ J. Mehrkens, Scoping Comments for Proposed TLMP Amendment at 2 (June 19, 2014) (Merkens Scoping Comments).

¹⁸ See Wrangell DEIS at 27, Tbl. 9.

- Identify the projected timber sale quantity (PTSQ) and the sustained yield limit (i.e., the ecological yield of timber that can be removed annually on a sustained yield basis).
- Establish plan components (e.g., standards and guidelines) for young-growth forest management and renewable energy development to guide future project decision-making.
- Consolidate modifications made to the Forest Plan since its approval.¹⁹

The FEIS also explains that the need for an amendment arose in response to the Secretary of Agriculture’s Memorandum 1044-009,²⁰ which directed the Tongass National Forest —to expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth . . . forests.”²¹ In so doing, the Secretary sought to —[p]reserve[] a viable timber industry that provides jobs and opportunities for Southeast Alaska residents.”²²

Notably, the Secretary did not opine on what constituted a viable timber industry, but did direct that the Forest Service develop ways to —[e]ffectuate a more rapid transition.”²³ The FEIS acknowledges, for example, that the Secretary directed the Forest Service to address several additional components —to promote more sustainable economic diversification and a more sustainable timber management program”²⁴ on the Tongass:

In addition to speeding the transition to management of second-growth, the memorandum references the increased support USDA had provided over the previous three years under the Transition Framework to support —[a]lternative economic development opportunities for communities across the region in the recreation, tourism, fishing and renewable energy sectors,” and directs such collaborative efforts to continue —to help strengthen and diversify local economies.”²⁵

¹⁹ FEIS at 1-8.

²⁰ FEIS at 1-8 to 1-9; *see also* PR 769_01_000046 at PDF 1 (U.S. Department of Agriculture, Office of the Secretary, Secretary’s Memorandum 1044-009 Addressing Sustainable Forestry in Southeast Alaska at 1-5 (July 2, 2013)) (Secretary’s Transition Memorandum).

²¹ FEIS at 1-9; *see generally* Secretary’s Transition Memorandum.

²² Secretary’s Transition Memorandum at PDF 1.

²³ *Id.* at PDF 3.

²⁴ FEIS at 1-7

²⁵ *Id.* (quoting Secretary’s Transition Memorandum).

Given the breadth of the purpose and need statement underlying the plan amendment, the Forest Service needed to examine a range of alternatives that accomplish the Secretary's directive ~~to~~ transition [the Tongass] forest management program to be more ecologically, socially, and economically sustainable."²⁶ The following section address various ways the Forest Service improperly constrained its alternatives analysis, because the agency could have considered all of these alternatives and still met the agency's purpose and need statement.

To the extent the Forest Service interprets the purpose statement narrowly to preclude consideration of any meaningful difference among the alternatives,²⁷ then the agency has ~~define[d]~~ its objectives in unreasonably narrow terms."²⁸

II. THE FEIS'S RANGE OF ALTERNATIVES IS INADEQUATE.

The infirmity of the agency's approach to the 2016 Amended Forest Plan is perhaps best reflected in its refusal to consider a legally defensible range of alternatives. All of the alternatives in the FEIS offer essentially the same purported transition out of old-growth logging: (1) all of the action alternatives lack any means of limiting old-growth timber sales to bring about the transition; (2) all action alternatives offer 10-15 years transition timeframes; (3) all action alternatives establish a PTSQ of 46 MMBF per year; (4) all alternatives contemplate continued application of the Limited Export Policy; (5) all action alternatives include identical changes regarding renewable energy; and (6) all action alternatives include identical changes regarding transportation. As explained below, and discussed in the DEIS Comment Letter,²⁹ the agency violated NEPA by artificially constraining its development of the alternatives in the FEIS in such a way that compromises the overall analysis and undermines the agency's decision-making regarding the balancing of competing values, including wildlife, climate change mitigation, as well as hunting and fishing.

First, all of the alternatives in the FEIS lack any plan mechanism for actually accomplishing the transition. The Secretary directed the Forest Service to ~~ensure~~ a smooth transition . . . [through] [t]he continuation of *limited sales of old growth timber*."³⁰ The Forest Service ignored that directive. None of the alternatives in the FEIS have a mechanism for limiting old-growth timber sales. In fact, they all have only one enforceable limit on the amount of old-growth that can be cut, the sustained yield limit, which allows up to 248 MMBF of old-growth to be logged per

²⁶ *Id.* at 1-8.

²⁷ *See, e.g.*, FEIS, App. I at I-12 (~~The~~ scope of the plan amendment is narrow because it is an amendment; not a revision, and the range of alternatives in the DEIS concentrate solely on the need for change as documented in the 5/27/14 NOI and the refined Purpose and Need statement in the DEIS."); *but see id.* at I-13 (~~Amendments~~ may be broad or narrow in scope, depending on the need to change the plan.").

²⁸ *City of Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997).

²⁹ DEIS Comment Letter at 10; *see also* Natural Resources Defense Council and Geos Institute Letter to Earl Stewart, Tongass Forest Supervisor at 4-12, Sec. I (Feb. 22, 2016).

³⁰ Secretary's Transition Memorandum at PDF 2 (emphasis added).

year.³¹ The only old-growth objective in the 2016 Amended Forest Plan simply states: —Old-growth timber harvest would gradually be reduced to an average of 5 million board feet (MMBF) annually, to support Southeast Alaska mills.”³² Elsewhere, however, the agency is more candid, explaining —[t]he only commitment that can be made is that young-growth volume will replace old-growth volume over time as rapidly as the economic availability of young-growth allows.”³³

The FEIS fails to examine varying alternatives despite the fact the agency received numerous recommendations for various ways the amended plan could bring about the transition by limiting the sales of old-growth timber sales over time. Many of the undersigned recommended that the Forest Service evaluate an alternative (Conservation Alternative) that included several characteristics,³⁴ including a plan limit on old-growth logging:

The most direct way to implement a rapid transition away from logging in old growth forests would be to place a limit on the old growth volume allowed for sale. The Forest Service should consider an alternative that splits [allowable sale quantity] between old growth and second growth components, just as it is now split between non-interchangeable components I and II. The alternative should provide for a defined, annual reduction of the old growth component of the [allowable sale quantity], and should within 5 years limit the old growth component to 3.5 MMBF per year or fewer. The alternative should reflect that this future old growth logging, intended to allow the existing small old growth mills in the region to continue to produce specialty products through selective logging designed for minimum impact, can be further reduced as these small mills increase their capacity to process second growth, with support and assistance from the Forest Service as needed, or in response to developing science.³⁵

At the time of this submission, the agency had not explained it had elected to pursue some of the transition elements of the 2016 Amended Forest Plan under the 2012 Planning Rule, which does not use the term allowable sale quantity. Nonetheless, as explained below, the concept underlying an alternative that splits old-growth and second-growth remains valid—the amended forest plan should —provide for a defined, annual reduction of the old growth component.”³⁶

³¹ 2016 Amended Forest Plan, App. A at A-5

³² *Id.* at 5-3 (O-YG-02).

³³ FEIS, App. I at I-34.

³⁴ PR 769_02_000013 (Southeast Alaska Conservation Council *et al.*, Letter to Forrest Cole, Forest Supervisor, Re: Request for Addition of a Conservation Alternative into Tongass Transition Framework at 3 (Feb. 5, 2015) (SEACC *et al.* Conservation Alternative Letter).

³⁵ *Id.* at 3.

³⁶ *Id.*

The 2008 Amended Forest Plan established an allowable sale quantity, which is “[t]he maximum quantity of timber that may be sold in each decade from suitable lands covered by the Forest Plan.”³⁷ In that plan the Forest Service exercised its discretion and divided the allowable sale quantity ~~into~~ into two non-interchangeable components.”³⁸ The 2016 Amended Forest Plan has a sustained yield limit, which is “[t]he quantity of timber that may be sold from the national forest is limited to an amount equal to *or less* than that which can be removed from such forest annually in perpetuity on a sustained yield basis.”³⁹ The Forest Service refused to divide that limit into old-growth and second-growth and then reduce the old-growth component over time to limit the number of old-growth sales. The Forest Service does not dispute that it is free to divide the sustained yield limit into mutually exclusive components (as it did in the 2008 Amended Forest Plan for a different reason), or that it is within the agency’s discretion to set an upper limit on logging below maximum sustained yield.

The Tongass Advisory Committee (TAC) also recommended the Forest Service adopt a forest plan amendment that provided some mechanism for advancing the transition. As the FEIS explains, the TAC was established to ~~provide~~ provide advice to the Forest Service on *how to expedite the transition* to young growth management.”⁴⁰ To accomplish this directive, the committee specifically recommended that the amended forest plan establish a goal for the ~~old growth~~ bridge timber volume” in which ~~[a]~~ all timber pool volume is through Gate 2 (National Environmental Policy Act (NEPA) cleared) by end of year 5” after adoption of the final record of decision.⁴¹

The Forest Service fails to consider any alternative that reduces old-growth logging,⁴² despite the Secretary’s explicit directive that the 2016 Amended Forest Plan needs to ~~limit[]~~ limit sales of old growth timber”⁴³ to achieve the transition. The agency’s primary response to this dodges the problem. The FEIS says: ~~Th~~ The Secretary did not envision an end to old-growth logging.”⁴⁴ Both Southeast Alaska Conservation Council *et al.* and the TAC, however, explicitly contemplated a continuation of old-growth logging in perpetuity. Southeast Alaska Conservation Council *et al.* recommended that the old-growth component of the timber volume should ~~ramp~~ ramp

³⁷ 2008 Amended Forest Plan at 7-2; *see also id.* at 4-70 (TIM1.I).

³⁸ *Id.* at 4-70 (TIM1.I.B.).

³⁹ 36 C.F.R. § 219.11(d)(6) (emphasis added); *see also* 2016 Amended Forest Plan at 7-62.

⁴⁰ FEIS at PDF 2 (emphasis added).

⁴¹ 2016 Amended Forest Plan, App. B at 13 (Tongass Advisory Committee Final Recommendations).

⁴² The FEIS’s Scoping and Comment Summary Report acknowledges repeated requests for ~~a~~ dual transition in which a firm ASQ is split between old- and second- growth components.” FEIS, App. A at A-21; *see also id.* at A-22 (contemplating an ASQ revision to reflect second-growth and old-growth).

⁴³ Secretary’s Transition Memorandum at PDF 2.

⁴⁴ FEIS, App. at I-18 to I-19 (responding to Comment ALT-5).

down to an amount sufficient to allow the existing small old-growth mills in the region to continue to produce specialty products through selective logging designed for minimum impact, approximately 3.5 million board feet.”⁴⁵ Similarly, the TAC report explained: —The TAC agrees that the USFS should: . . . Maintain a post transition annual old growth timber harvest that will meet the long term demand of the small and micro sale programs.”⁴⁶ The failure to include any alternative that actually limits old-growth logging over time violates NEPA.

Second, the FEIS fails to consider a range of reasonable alternatives because the speed of the transition across all of the action alternatives is virtually the same. The Conservation Alternative also included a five-year transition out of industrial-scale, old-growth logging.⁴⁷ The Forest Service’s justifications for failing to consider the five year transition in the FEIS are arbitrary and unsupported by the planning record. The objections submitted by Natural Resources Defense Council (NRDC) and Geos Institute (Geos) demonstrate the agency’s explanation is based on flawed reasoning and false premises regarding the availability of second-growth and the transition timing. Rather than repeat those arguments, the undersigned groups incorporate the relevant portions of the objections and the supporting materials.⁴⁸

Nonetheless, even if the agency had not reached an arbitrary conclusion about the availability of second-growth, the agency’s refusal to examine a five year transition is arbitrary and the fact the FEIS fails to include such an alternative (or indeed any alternative faster than 12 years) violates NEPA. Even if second-growth were not available, the Forest Service should have considered an alternative that ended old-growth logging in five years to avoid the many adverse impacts to the region from continued old-growth logging.⁴⁹ The Secretary directed the agency to facilitate a transition that provides for a viable timber industry, not one that is identical to the current industry composition. Based on any number of considerations (e.g., variations in the application of the Limited Export Policy, variations in market demand and projected timber sale quantity, etc.), the agency had to evaluate various means of advancing a transition while supporting a

⁴⁵ Southeast Alaska Conservation Council *et al.*, Letter to Forrest Cole, Forest Supervisor, at 2 (June 26, 2014). Notably, this is consistent with the finding of the Forest Service’s Regional Economist and Dr. Jean M. Daniels, who agreed that the volume used by small operators —is probably somewhere between 1.4 MMBF and 3.0 MMBF.” PR 769_05_000794 at 1 (N. Grewe, email to M. Lisowski, Re: Question from Forrest at 1 (Apr. 2, 2015)).

⁴⁶ 2016 Amended Forest Plan, App. B at 13; *see also id.* at 9 (—Continue emphasis on additional opportunities for the small and micro-sale programs and show continuity in small old growth sales for these programs beyond the transition period.”).

⁴⁷ *See* SEACC *et al.* Conservation Alternative Letter; PR 769_04_000014 (Southeast Alaska Conservation Council *et al.*, Letter to Forrest Cole, Re. Additional Information About Our Request for Inclusion of a Conservation Alternative in the Tongass Transition Amendment Process (Mar. 5, 2015)).

⁴⁸ *See* Natural Resources Defense Council Objection Letter to Beth Pendleton, Regional Forester, at Explanation, Section II (Aug. 30, 2016); Geos Institute Objection Letter to Beth Pendleton, Regional Forester, at Objection 1 (July 27, 2016).

⁴⁹ *See infra* pp. 73-85, 95-128.

viable industry by focusing on providing jobs for Southeast Alaska, rather than favoring Viking Lumber at the cost of massive exports out of the region.

The Forest Service's decision to limit its transition analysis so severely appears to be tied to its *Scenario Analysis: Young Growth Management on the Tongass National Forest* (the Scenario Analysis), which the agency published in 2013, in response to the Secretary's Transition Memorandum.⁵⁰ The Secretary directed the agency to analyze –scenarios that effectuate a more rapid transition by prioritizing and developing additional young growth and restoration projects that could be completed over the next 5 years.”⁵¹ In the Scenario Analysis, the Forest Service examined four scenarios to achieve a transition within 10-15 years.⁵² But, instead of analyzing –scenarios that effectuate a more rapid transition,”⁵³ as the Secretary directed, the agency only analyzed a single scenario that could achieve the transition goal.⁵⁴ Not surprisingly, that single scenario serves as the basis for every action alternative in the FEIS. Simply put, the Forest Service preordained the outcome of the transition analysis before the DEIS was ever drafted.⁵⁵

Third, the FEIS is flawed because it only examines alternatives that project the Tongass timber sale quantity for timber will average 46 MMBF per year for the next fifteen years, regardless of the allocation between old-growth and second-growth.⁵⁶ The Forest Service should examine alternatives that adjust this estimate downward not only because they would more accurately reflect realistic market conditions and trends, but also because they would inform the agency's conclusions regarding economic sustainability.⁵⁷ As it stands, the agency locks the entire FEIS into a single unvarying timber output expectation without justifying or analyzing that information and, in so doing, misrepresents the choices the agency is making between the adverse environmental impacts of continuing industrial-scale, old-growth logging for another 16 or more years compared to the ostensible jobs and economic benefits from logging.

⁵⁰ PR 769_05_000692 (U.S. Department of Agriculture, Forest Service, Alaska Region, *Scenario Analysis: Young Growth Management on the Tongass National Forest* (August 2013) (Scenario Analysis)).

⁵¹ Secretary's Transition Memorandum at PDF 3 (2.d).

⁵² Scenario Analysis at PDF 3 (Summary).

⁵³ Secretary's Transition Memorandum at PDF 3 (2.d).

⁵⁴ Scenario Analysis at PDF 3.

⁵⁵ See, e.g., Mehrkens Scoping Comments at 11 (“Supervisor Cole is on record that he wants to reallocate 2nd-growth stands outside the TLMP timber base to be considered for a new timber base that would feed a 2nd-growth timber industry. If so, this predetermined outcome assumes the highest and best use for these 2nd-growth stands is for timber production.”)

⁵⁶ FEIS at ES-5.

⁵⁷ 36 C.F.R. § 219.8(b); see also *id.* § 219.19 (defining –sustainability”).

Fourth, the FEIS's range of alternatives is flawed with respect to the agency's treatment of the Limited Export Policy.⁵⁸ As explained in greater detail below, the FEIS fails to examine any variations on the Limited Export Policy despite the fact the agency concedes —“the limited export policy has affected the amount of logs available for local processing in recent years by allowing timber sales that would otherwise have been uneconomic to appraise positively and be made available for purchase.”⁵⁹ The agency must include alternatives in which the Limited Export Policy does not continue in perpetuity and is modified in various ways, to fulfill NEPA's requirements of a meaningful comparative analysis of environmental consequences among reasonable alternatives.⁶⁰ Only by comparing alternatives with varying approaches to the Limited Export Policy would the Forest Service highlight important tradeoffs that are currently obscured by the agency's analysis. For example, the agency should have included an alternative with no application of the Limited Export Policy, which would have allowed the agency to examine the impacts of a smaller old-growth logging program that provides more jobs per unit of timber logged and greater protection of wildlife, biological diversity, carbon stores and carbon sequestration, and subsistence uses. In contrast, the FEIS's analysis only addresses the impacts of a subsidy-dependent, export-driven industry that provides relatively few jobs and relatively high adverse impacts and costs on all other values that the agency must account for in managing the Tongass. The Forest Service acts arbitrarily and contrary to law when it impermissibly ties the entire plan amendment effort to the Limited Export Policy, because it limited the range of smaller, more economically and environmentally sustainable alternatives that would transition the Tongass out of a predominantly old-growth model much faster.⁶¹ The failure to consider these options in an EIS violates NEPA.

Fifth, the FEIS fails to consider a range of reasonable alternatives for renewable energy and biomass in particular.⁶² With one minor exception, the action alternatives feature identical biomass provisions: the Transportation and Utility Systems (TUS) land use designation (LUD) is replaced with management direction in Chapter 5 that supersedes direction in Chapters 3 and 4 in

⁵⁸ See DEIS Comment Letter at 15-21.

⁵⁹ FEIS, App. I at I-157 (addressing MKD-8).

⁶⁰ *Ctr. for Biological Diversity v. U.S. Dep't of Interior*, 623 F.3d 633, 645, 648 (9th Cir. 2010) (“It is black-letter law that NEPA requires a comparative analysis of the environmental consequences of the alternatives before the agency.”); *Methow Valley Citizens Council v. Reg'l Forester*, 833 F.2d 810, 815 (9th Cir. 1987) (holding that an agency must consider a range of alternatives that is —sufficient to permit a reasoned choice”), *rev'd on other grounds*, *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

⁶¹ For these reasons, and as explained below in detail, the Forest Service's failures regarding the Limited Export Policy also raise infirmities under NFMA and the other statutes governing Tongass forest plans. See *infra* pp. 25-35.

⁶² The undersigned support the concept of supporting other types of renewable energy projects, but doing so with no limits can undermine their positive aspects.

case of a conflict.⁶³ Thus, environmentally protective direction in Chapters 3 and 4 and the TUS LUD (previously contained in the 2008 Amended Forest Plan) is either deleted or at risk of being superseded by the new Chapter 5 direction—in this case, by a new objective to “encourage” biomass.⁶⁴ The agency intends for these changes to “make the development of renewable energy resources more permissible” in addition to addressing concerns that the 2008 Amended Forest Plan’s TUS direction is confusing.⁶⁵ Again, however, the Forest Service was obligated to consider alternatives that would advance those goals while preserving environmental protections that apply under the 2008 Amended Forest Plan. A plethora of potential alternatives would have satisfied the agency’s obligation. The agency provides no justification for exploring only one suite of biomass changes, and its failure to consider a range of reasonable alternatives in this regard violates NEPA.

Sixth, the FEIS fails to consider a range of reasonable alternatives regarding the transportation changes. Every action alternative includes precisely the same sweeping transportation changes: replacement of the TUS LUD with management direction in Chapter 5 which supersedes direction in Chapters 3 and 4 in case of a conflict.⁶⁶ The result is that much of the environmentally protective transportation direction in Chapters 3 and 4 and the TUS LUD is either deleted or at risk of being superseded by a new direction to “facilitate” major roads.⁶⁷ The agency intends for these changes to address “[c]oncerns . . . that the 2008 Plan’s direction regarding transportation and utility systems (TUS), including the TUS overlay LUD, were overly complex, confusing, and difficult to implement.”⁶⁸ The Forest Service, however, was obligated to consider alternatives that would advance that goal while preserving environmental protections

⁶³ See FEIS at 2-10 (showing that all plan direction and management approaches are the same for every action alternative, except that Alternative 2 would apply a different scenery standard for renewable energy sites); *id.* at ES-6; *id.* at 3-325.

⁶⁴ See, e.g., FEIS at 3-313 (explaining transportation and utility “avoidance areas” will be removed); *id.* at 3-317 (explaining an “avoidance area” is an area where the establishment and use of transportation and utility corridors is not desirable given the LUD emphasis”); see 2016 Amended Forest Plan at 1-5 (establishing that Chapter 5 direction supersedes direction in Chapters 3 and 4 when there is a conflict or discrepancy in direction); *id.* at 5-9 (establishing an objective to “encourage renewable energy production”).

⁶⁵ FEIS at 1-9, 1-8.

⁶⁶ See FEIS at 2-10 (showing that all plan direction and management approaches are the same for every action alternative); *id.* at ES-6; *id.* at 3-313.

⁶⁷ See, e.g., FEIS at 3-313 (explaining transportation and utility “avoidance areas” will be removed); *id.* at 3-317 (explaining an “avoidance area” is an area where the establishment and use of transportation and utility corridors is not desirable given the LUD emphasis”); see 2016 Amended Forest Plan at 1-5 (establishing that Chapter 5 direction supersedes direction in Chapters 3 and 4 when there is a conflict or discrepancy in direction); *id.* at 5-10 (stating “[t]he purpose of the plan direction is to facilitate the availability of NFS land for the development of existing and future transportation system corridors.”).

⁶⁸ FEIS at 1-8.

that apply under the 2008 Amended Forest Plan. The U.S. Fish and Wildlife Service, for example, recommended the Forest Service “develop[] and select[] . . . an alternative that avoids sensitive areas and important habitats for any renewable energy or transportation projects approved under the Forest Plan.”⁶⁹ The Forest Service ignored this recommendation in the FEIS. Another obvious alternative would be to “facilitate” major roads *subject to* Chapter 3 and 4 management prescriptions, rather than the other way around. Still another would be to improve on and add to the TUS LUD, which incorporates important environmentally protective measures,⁷⁰ instead of replacing it. The agency provides no justification for exploring only one pre-ordained suite of transportation changes. Its failure to consider a range of reasonable options violates NEPA.

In short, the FEIS is unlawful, because it only analyzes alternatives that are virtually identical in fundamental ways. As the Ninth Circuit has explained, agencies cannot make an informed decision on a project’s environmental impacts when “[t]here is no meaningful difference between the four alternatives considered in detail[.]”⁷¹

* * *

For all of these reasons, the 2016 Amended Forest Plan fails to advance the Department of Agriculture’s visionary goal of “transitioning quickly away from timber harvesting in . . . old-growth forests.”⁷² Instead, it only entrenches and prolongs the controversy surrounding the unsustainable, export-dependent, industrial-scale, old-growth industry for at least another 16 years and likely much longer. In so doing, the Forest Service seriously compromises Tongass ecosystems, wildlife, subsistence and climate change mitigation opportunities. The agency’s refusal to even consider alternatives in the FEIS in the ways described above violates NEPA.

⁶⁹ Public Comment – Cochon_Grace (Attachment) (Letter from P. Johnson to E. Stewart, Re: Draft Environmental Impact Statement for the Tongass Land and Resources Management Plan Amendment, Alaska at 2 (Feb. 17, 2016)) (U.S. Fish and Wildlife Service DEIS Letter).

⁷⁰ See, e.g., 2008 Amended Forest Plan at 3-131 to 3-133 (establishing TUS LUD requirements to “[p]rohibit or bury or submerge powerlines where feasible,” “[d]elineate the location of high hazard soils, riparian, and other sensitive areas on project maps to ensure their recognition, proper consideration, and protection during the [utility] project,” and “[e]stablish a baseline inventory, or use an existing inventory of wildlife habitat conditions, preceding or coinciding with [utility] development”). These requirements have no corollary in the 2016 Amended Forest Plan. See 2016 Amended Forest Plan at 5-10 to 5-12.

⁷¹ *W. Watersheds Project v. Abbey*, 719 F.3d 1035, 1051 (9th Cir. 2013).

⁷² 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).

ROADLESS AREAS

The objecting parties interpret the Draft ROD and the 2016 Amended Forest Plan to prohibit logging and road construction generally in inventoried roadless areas, separately and independently from the Roadless Area Conservation Rule (Roadless Rule). The Roadless Rule has been challenged in court and attacked politically. Regardless of the outcome of any pending or future litigation about the Roadless Rule or of any future changes to the Roadless Rule, the 2016 Amended Forest Plan would continue to protect inventoried roadless areas in its own right.⁷³ The responses to comments on the DEIS appear to clarify this understanding.⁷⁴ The objecting parties salute this feature of the amendment.

As discussed in comments, this understanding would be clearer if the suitable lands analysis excluded inventoried roadless areas at Step 2 rather than, or in addition to, Step 1.⁷⁵ Although the Forest Service declined to make this change,⁷⁶ it appears that the intent to protect roadless areas independently of the Roadless Rule is sufficiently clear for the reasons stated above.

If this understanding of the 2016 Amended Forest Plan is incorrect, and the protection for inventoried roadless areas is intended to hinge on the status of the Roadless Rule, then the objecting parties object strongly to the Draft ROD. Such intent has not been adequately disclosed to the public. The assessment of impacts in the FEIS assumes no logging in any roadless areas under the selected alternative (Alternative 5), precluding any attempt to allow roadless area logging under the 2016 Amended Forest Plan.⁷⁷ To apply the plan in a manner that protects inventoried roadless areas only based on the application of the Roadless Rule would violate NEPA and NFMA.

In any case, the plan should adopt the most current version of the roadless area inventory. The 2016 Amended Forest Plan would continue to use an older inventory.⁷⁸ In connection with the 2003 forest plan amendment, the Forest Service updated and corrected errors in the 2001

⁷³ See, e.g., FEIS at 3-256 (“Alternative 3 would permit old-growth and young-growth harvest in 2001 Roadless Areas, but only if the Roadless Rule changed or the Tongass Roadless Rule Exemption were reinstated. No harvest in Roadless Areas would occur under Alternatives 1, 4, and 5.”); *id.* at 3-445 (explaining that “[o]nly Alternatives 2 and 3 would allow harvest within IRAs” and that a change to existing regulations would be required for this to happen); *id.* at 2-36, Tbl. 2-14 (Key Elements of Alternative 5: “No harvest is allowed in IRAs.”).

⁷⁴ *Id.*, App. I at I-178 (“Table 2-14 in Chapter 2 of the FEIS also shows that no harvest is allowed in Inventoried Roadless Areas in Alternative 5.”).

⁷⁵ See DEIS Comment Letter at 11.

⁷⁶ See FEIS, App. I at I-177.

⁷⁷ See, e.g., FEIS at 3-207, Tbl. 3.9-11 (displaying zero “Maximum Harvest” in Inventoried Roadless Areas for both young growth and old growth).

⁷⁸ See 2016 Amended Forest Plan at 7-27 (“Inventoried roadless area” definition).

inventory, and has used the updated inventory since.⁷⁹ The 2016 Amended Forest Plan should protect the inventoried roadless areas identified in the 2003 amendment.

LAND USE DESIGNATION AND SUITABLE LANDS

The 2016 Amended Forest Plan unfortunately retains contradictory provisions in which forest lands deemed unsuitable for timber production are nevertheless left in Development LUDs.⁸⁰ The 2016 Amended Forest Plan identifies certain lands—old-growth in so-called Phase 2 and 3 lands, Tongass 77 lands, and conservation priority areas—that are considered unsuitable for logging due to unacceptable adverse impacts to fish, wildlife, and other values.⁸¹ Lands not suitable for timber production, for these reasons, should not be in Development LUDs, which have desired future conditions and objectives that emphasize timber production.⁸² Indeed, the description of the suitability determinations states that forest lands are deemed suitable ~~if~~ they are compatible with desired conditions and objectives.⁸³ The incompatibility of these unsuitable lands with Development LUDs creates confusion and likely misapplication of the plan in implementation.

The FEIS's response to this concern is to note that conforming the LUDs to the suitability determinations ~~would~~ require additional scoping.⁸⁴ This is an inadequate response. The notice of intent to prepare an EIS plainly informed the public that ~~the~~ Forest Service will evaluate which lands should be available for timber harvest . . .⁸⁵ Evaluating the availability of land for timber harvest is a purpose broad enough to encompass changes to suitability determinations, LUD determinations, or both as needed. Indeed, a much more logical reading of this notice is that suitability determinations and LUDs would go hand-in-hand. No one would reasonably construe that notice to countenance the adoption of new suitability determinations that are incompatible with the LUDs in which the lands are located. To do so creates confusion and a high risk that the plan will be misapplied in implementation. The final forest plan should move the forest lands deemed unsuitable for timber production to Non-development LUDs.

⁷⁹ See 2008 FEIS at 3-445.

⁸⁰ See DEIS Comment Letter at 11-12.

⁸¹ See 2016 Amended Forest Plan, App. A at A-5; FEIS at 2-33, 3-103 to 3-104.

⁸² See, e.g., 2016 Amended Forest Plan at 3-118 (objectives and desired condition for Timber Production LUD); *id.* at 3-123 (~~Forest lands are suitable for timber production~~”).

⁸³ 2016 Amended Forest Plan, App. A at A-4.

⁸⁴ FEIS, App. I at I-36.

⁸⁵ 79 Fed. Reg. 30,074, 30,075 (May 27, 2014).

MARKET DEMAND

In the DEIS Comment Letter, the objecting parties described how the 2015 Draft Amended Forest Plan was based on an inflated projection of market demand, which was unvarying in all of the alternatives considered in the DEIS, and adopted an improperly rigid timber target of 46 MMBF per year regardless of actual demand.⁸⁶ These errors unlawfully restrict the range of alternatives considered in the FEIS, they misrepresent the ostensible jobs and economic benefits from logging under the plan, and they will lead to wasteful expenditure of resources on timber sales. In so doing, the agency violates NEPA, misapplies the market demand provision of the TTRA, and skews the multiple use balancing choices under NFMA and the Multiple-Use Sustained-Yield Act. The FEIS, Draft ROD, and the 2016 Amended Forest Plan do not correct these errors, and the Forest Service should not sign a ROD without a more realistic and flexible approach to timber market demand.

The market demand projection concludes that the forty-year trend of declining timber market demand on the Tongass will reverse and start growing again. This results from the unlikely assumption in the Daniels market demand study that Southeast Alaska will retain the same share it currently has of rising global demand.⁸⁷ In response, the FEIS asserts that Daniels *et al.* made “conservative assumptions.”⁸⁸ The assumption of retained market share, though, is contrary to powerful, long-term trends and far from conservative. The FEIS then concludes, “[t]he likelihood that baseline demand will drop below post-recession levels is considered very low.”⁸⁹ This is reminiscent of the preceding demand study’s statement that “[w]e judge . . . the probability of a future decrease in demand for lumber to the Pacific Rim is almost zero, the probability of no change in demand small, and the probability of an increase in demand extremely high.”⁹⁰ Of course, this turned out to be embarrassingly wrong—worldwide wood product markets were crashing even as that study was published, demand plummeted, and markets have still not recovered to anywhere near the levels projected by that study. The Forest Service should own up to the fact that all of its past bullish projections have proved wrong⁹¹ and at least disclose and analyze the possibility that the long-term trend of declining demand for Tongass timber will continue.

⁸⁶ See DEIS Comment Letter at 12-15.

⁸⁷ See DEIS Comment Letter at 12-13; E. Niemi, *Socioeconomic Comments: Timber Demand* at 11-17 (Feb. 2016) (Niemi, *Timber Demand*); PR 769_05_000931 (J.M. Daniels, *et al.*, *Tongass National Forest Timber Demand: Projections for 2015 to 2030* at 31 (April 2016)) (Daniels 2016).

⁸⁸ FEIS, App. I at I-152 to I-153.

⁸⁹ *Id.* at I-153.

⁹⁰ A.M. Brackley, *et al.*, *Timber Products Output and Timber Harvests in Alaska: An Addendum* at 29 (August 2008).

⁹¹ See Daniels 2016 at 3, Fig. 1.

Indeed, evidence of reduced demand is starkly before the Forest Service right now. Even applying an agency policy that allows half the spruce and hemlock to be exported from the region with no local processing (the very assumption used in Daniels *et al.*⁹²), the Forest Service has been unable to find a substantial volume of timber to offer that will appraise positively. Timber values are simply too low relative to the costs of logging on the Tongass. Thus, the agency is expanding exports even further, moving to 100 percent export for most of the sales offered this year.⁹³ This misguided response allows the agency to offer more timber for sale, but without the jobs and economic benefits of local processing. In essence, Southeast Alaska is paying a steep environmental cost for these timber sales without reaping the economic benefit. The fact that the agency must take such extreme steps is irrefutable evidence that market demand for timber is *already* less than Daniels *et al.* projected.

The FEIS also asserts that non-market factors—such as appeals and budgets—may be responsible for declining logging on the Tongass, but offers no analysis or facts to support such an inference.⁹⁴ In the absence of record support for this conclusion, the Forest Service may not use it as an excuse to disregard the economic trends at work that have reduced demand for Tongass timber.

The objecting parties also pointed out in their comments that the 2015 Draft Amended Forest Plan improperly included an objective—O-TIM-01—to offer an average annual volume of 46 MMBF, regardless of actual market demand.⁹⁵ In response, the FEIS assures readers that “[t]his is not the case,” and that the objectives “~~have~~ been revised in the Final Forest Plan to make this clearer and avoid further confusion.”⁹⁶ Unfortunately, the offending objective remains in the plan and reflects no revision that avoids the identified problem. The objective still directs the agency to “offer an average of 46 MMBF annually. . . .”⁹⁷ This objective is not tied in any way to market demand.⁹⁸ If market demand falls short of this level, the objective will remain, spurring wasteful allocation of resources to unneeded timber sales. This is a significant misapplication of the market demand goal in the TTRA and fails to balance timber goals with other resource needs on the forest in violation of the multiple-use balancing directive of that Act, NFMA, and the Multiple-Use Sustained-Yield Act. The final plan amendment should delete this objective. The next objective in the plan (O-TIM-02) tells the agency to “[s]eek to provide an economic timber supply sufficient to meet the annual market demand,”⁹⁹ and is not tied to any fixed volume goal. It is more flexible and more than ample to ensure that the agency seek to meet its obligations under the TTRA.

⁹² See Daniels 2016 at 10.

⁹³ See *infra* pp. 32-33.

⁹⁴ FEIS, App. I at I-153.

⁹⁵ See DEIS Comment Letter at 13.

⁹⁶ FEIS, App. I at I-37.

⁹⁷ 2016 Amended Forest Plan at 5-13 (O-TIM-01).

⁹⁸ See *id.*

⁹⁹ *Id.* (O-TIM-02).

The FEIS also responds to the DEIS Comment Letter by asserting that “[t]he Morse methodology will continue to be used to comply, year-to-year, with the annual demand portion of the ‘seek to meet’ requirement.”¹⁰⁰ As explained in the DEIS Comment Letter, the problem with this response is that the Morse methodology uses the Pacific Northwest Research Station (PNW) forecasts (Daniels *et al.*) as the “projected harvest.” Therefore, if Daniels *et al.* has overestimated demand, the Morse methodology will generate a goal that is correspondingly too high (which will then be tripled to meet forest plan objectives, exacerbating the inflated projection even further).¹⁰¹ The FEIS provides no meaningful response to this point, asserting instead that “[r]evisions to the Morse methodology are outside the scope of this Forest Plan amendment.”¹⁰² This response misses the point completely. The DEIS Comment Letter did not ask for changes to the Morse methodology—it asked the agency to use realistic, flexible inputs for “projected harvest” in the Morse methodology. Instead of doing so, the agency has doubled down on its commitment to 46 MMBF per year.

The commenting parties also pointed out that the 2012 planning regulations require the Forest Service to ensure that the 46 MMBF PTSQ is economically sustainable.¹⁰³ The FEIS provides no response to this point at all and makes no attempt to determine whether that level of cut is economically sustainable. As pointed out in the DEIS Comment Letter,¹⁰⁴ there are many reasons to believe it is not: it is based on unreasonable assumptions of a cessation and reversal of historic trends depressing the demand for timber from the Tongass; it disregards the fact that past and present logging has consistently targeted the most valuable and accessible stands of timber in the Tongass, leaving a remaining pool of old-growth timber that is less valuable and more expensive to cut;¹⁰⁵ and it unrealistically assumes that Congress will continue to fund a timber sale program that results in enormous losses to taxpayers, far in excess of any reasonable measure of the benefits of the program.¹⁰⁶ The challenges the agency has faced this year in identifying economically viable timber provide further evidence that the PTSQ is not economically sustainable.¹⁰⁷ The 2016 Final Forest Plan Amendment, if adopted in a final ROD, would violate the sustainability requirement of the planning rules. The failure to address and analyze this requirement violates NFMA and NEPA.

¹⁰⁰ FEIS, App. I at I-37.

¹⁰¹ See DEIS Comment Letter at 14.

¹⁰² FEIS, App. I at I-156.

¹⁰³ See DEIS Comment Letter at 13-14; 36 C.F.R. §§ 219.8(b), 219.19 (defining “sustainability”).

¹⁰⁴ See DEIS Comment Letter at 14.

¹⁰⁵ See, e.g., FEIS at 3-195 (“Low elevation, larger-tree stands have been disproportionately harvested on the Tongass National Forest. These highly productive and economical sites (i.e., those easiest to access) were targeted in the early years of commercial timber harvest because they tended to be adjacent to the beach and within floodplain riparian areas where large Sitka spruce were available and abundant.”).

¹⁰⁶ See *infra* pp. 36-37.

¹⁰⁷ See *infra* pp. 32-33.

EXPORT POLICY

As described in the FEIS, federal law limits the export of unprocessed timber cut on the Tongass and also limits timber sales to those that appraise positively. 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.”¹⁰⁸ Under Forest Service regulations implementing this statute, ~~fu~~ unprocessed 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.”¹⁰⁹ The housing market collapse in 2007, together with the congressional prohibition on the advertisement of timber sales with negative appraisals, exacerbated the inherent difficulties faced by the Tongass timber sale program from high costs and long distances from markets. In 2007, for the first time since World War II, the Regional Forester adopted a blanket policy allowing the out-of-region export of up to half the Sitka spruce and western hemlock sawlogs, unprocessed, without the case-by-case determination that had previously been required.¹¹⁰ This policy is known as a Limited Export Policy. Since 2007, the Forest Service has annually reached a decision on a Limited Export Policy regarding the authorization of unprocessed log export for that year.

The Forest Service has not yet undertaken NEPA analysis of the Limited Export Policy, even though the policy is the crucial determinant of the volumes of timber that the agency proposes to log under the 2016 Amended Forest Plan. As pointed out elsewhere, each Limited Export Policy decision considered alone is an independent rulemaking and major federal action, requiring procedures of notice and comment as well as NEPA analysis.¹¹¹ Such NEPA analysis has never been undertaken. Instead the Limited Export Policy was internalized in every alternative considered by the FEIS. Although alternatives varying the Limited Export Policy are squarely within the purpose and need of the FEIS, the FEIS instead treats the extant Limited Export Policy as a *fait accompli*, offering legally incorrect and logically incoherent rationales for ignoring its analysis. The FEIS’s omission of analysis of the Limited Export Policy, by omitting alternatives varying the Policy, violates NEPA. The agency must consider alternatives with different export policies, so that alternatives with varying policies can be evaluated and their impacts analyzed, as required by law.

¹⁰⁸ 16 U.S.C. § 616.

¹⁰⁹ 36 C.F.R. § 223.201.

¹¹⁰ *See* Memorandum from Dennis E. Bschor, Regional Forester, to Forest Supervisor, Tongass National Forest, Re. Limited Interstate Shipments of Unprocessed Sitka Spruce and Western Hemlock Timber at 1 (Mar. 14, 2007) (Bschor 2007).

¹¹¹ DEIS Comment Letter at 20-21; Letter from Thomas S. Waldo, Earthjustice, to Beth Pendleton, Regional Forester, U.S. Forest Service, at 4-6 (Mar. 21, 2016) (Waldo Letter).

I. NEPA REQUIRES CONSIDERATION OF ALTERNATIVES VARYING THE LIMITED EXPORT POLICY.

When an agency proposes an action, NEPA requires consideration of all reasonable alternatives.¹¹² “The scope of an alternatives analysis depends on the underlying ‘purpose and need’ specified by the agency for the proposed action,”¹¹³ with NEPA requiring the agency to evaluate alternatives that are reasonably related to the purposes of the proposed action.¹¹⁴ “The existence of reasonable but unexamined alternatives renders an EIS inadequate.”¹¹⁵

A. Alternatives Varying the Limited Export Policy Are Reasonably Related to the Purposes of the 2016 Amended Forest Plan.

As raised in the DEIS Comment Letter,¹¹⁶ contrary to the agency’s statements, alternatives varying the Limited Export Policy are reasonably related to the purposes of the 2016 Amended Forest Plan. The FEIS states that consideration of varying the Limited Export Policy was “beyond the scope” of the FEIS.¹¹⁷ However, alternatives incorporating variations of the Limited Export Policy are within the action’s purpose and need. Among the purposes of the 2016 Amended Forest Plan is the “[i]dentification of] the projected timber sale quantity.”¹¹⁸ A close look at the FEIS’s reasoning reveals that, not only can alternatives varying Limited Export Policy fall within the action’s purposes, but also that the identification of timber sale quantity cannot occur without such alternatives.

The Limited Export Policy is the central variable determining what amount is identified as the quantity of timber sold in the 2016 Amended Forest Plan. This is evident from an examination

¹¹² 40 C.F.R. § 1502.14(a) (instructing agencies “[r]igorously [to] explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.”).

¹¹³ *League of Wilderness Defs. Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1069 (9th Cir. 2012).

¹¹⁴ *Id.*; see also *City of Carmel-By-The-Sea*, 123 F.3d at 1155 (“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)).

¹¹⁵ *Friends of Southeast’s Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir.1998); *Natural Res. Def. Council*, 421 F.3d at 813 (“The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.”).

¹¹⁶ DEIS Comment Letter at 18-19.

¹¹⁷ FEIS, App. I at I-169 (“The limited shipment policy will continue to be subject to review and modification on an annual basis, as noted above. Changes to this policy are outside the scope of this Forest Plan EIS.”).

¹¹⁸ FEIS at 1-8.

of the alternatives considered in the FEIS. Unlike in past Forest Plan amendments, where “varying demand scenarios were used to develop alternatives,”¹¹⁹ the 2016 Amended Forest Plan alternatives were all “designed to correspond with current demand projections and produce a projected timber sale quantity [PTSQ] of about 46 [million board feet] per year during the next 15 years.”¹²⁰ The FEIS’s demand projections are based on Daniels *et al.*,¹²¹ which openly states that the continuation of the Limited Export Policy indefinitely and unchanged was a foundational assumption for its projections.¹²²

In fact, continuation of the Limited Export Policy is not merely one among many inputs for the determination of market demand for Tongass timber: it is *the* crucial variable, since “[t]he policy modified how timber sales were appraised,”¹²³ namely allowing for positive appraisals where sales would have otherwise appraised negatively and been precluded by law.¹²⁴ In the FEIS’s words, “[t]he programmatic limited approval of interstate shipments . . . increase[s] the Forest Service’s ability to design sales with greater utilization and a positive appraisal,”¹²⁵ such that

¹¹⁹ *Id.* at 2-9.

¹²⁰ *Id.*

¹²¹ *Id.*, App. I at I-157 (“The [FEIS’s demand] analysis accounts for the demand for unprocessed logs and assumes that logs from the Tongass would continue to be exported. The limited export policy has affected the amount of logs available for local processing in recent years by allowing timber sales that would otherwise have been uneconomic to appraise positively and be made available for purchase. . . . *Assuming that this practice would remain in place*—by using recent trends to estimate future demand—reflects the current environment within which the Southeast Alaska timber industry operates.” (emphasis added)); *id.* at I-154 (“The Draft EIS provides an overview of the modeling approach used by the PNW Research Station to estimate market demand for timber (see pp. 3-455 to 3-460). More detailed information regarding the methodology and data sources used for the PNW Research Station study is provided in Daniels *et al.* (2016).”).

¹²² Daniels 2016 at 10 (describing the Limited Export Policy and stating that “[t]he emergence of the Tongass National Forest as an international supplier of softwood logs is a major development since the date of the last demand study that was incorporated into new demand projections.”).

¹²³ *Id.*

¹²⁴ FEIS, App. H at H-3 to H-4 (“The wood products market crises made it difficult for the Forest Service to offer timber that would appraise positive, yet Section 318 prohibits the Forest Service from offering sales that do not. . . . The Forest Service recognized appraisals of proposed Tongass timber sales would rise if they assumed that a portion of the unprocessed Sitka spruce and hemlock logs were to be shipped to lower 48 markets, such that timber sale appraisals would reflect beneficial pricing in markets outside of Alaska. That assumption would be possible if shipments were approved prior to the sales being appraised [I]n 2007 the Alaska regional forester adopted the Limited Export Policy, intended to boost appraised timber values, provide economic sale opportunities for purchasers, and provide additional processing options for purchasers.”).

¹²⁵ *Id.* at H-4.

—many sales would not be offered if not appraised for export.”¹²⁶ Increasing the number of sales appraising as positive—leading ultimately to more logging—was the Limited Export Policy’s *raison d’être*.¹²⁷ Consequently, every alternative in the FEIS internalizes the assumption of a continued Limited Export Policy, affecting logging levels and key effects associated with each alternative.¹²⁸

Alternatives in which the Limited Export Policy is not continued or is modified are reasonably related to the 2016 Amended Forest Plan’s purposes, but are completely ignored in the FEIS. Variations on the Limited Export Policy are not even included among the alternatives eliminated from detailed review.¹²⁹ No explanation is given as to why these variations were not considered. As discussed in connection with the DEIS,¹³⁰ only by inclusion of alternatives varying the Limited Export Policy would it be possible to engage in the comparative analysis of environmental consequences among reasonable alternatives required by NEPA.¹³¹ Alternatives varying the Limited Export Policy would have identified timber quantities differently than other alternatives in the FEIS, allowing for the evaluation of dramatically different economic tradeoffs and environmental impacts than those presented in the FEIS. The additional volume of timber logged under the Limited Export Policy adds relatively few jobs, since the exported volume requires no local processing. Reasonable alternatives, therefore, 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 policy, which emphasizes timber production with relatively few jobs and relatively high adverse impacts and costs on all other values. Intermediate options could also be considered. All of these options would meet the purpose and need of the FEIS, and the agency never claims otherwise. The failure to consider these options in the FEIS violates NEPA.

¹²⁶ *Id.* at H-6; *see also* Draft ROD at 29 (“With the positive appraisal requirement, many sales could not be offered if not appraised for export.”).

¹²⁷ *See* 2008 TLMP AR 603_1777 at 2-3 (R. Coleman & D. Castillo, *Tongass Timber Appraisal Issues* at 2-3 (Feb. 1, 2007)) (“Limited 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.”).

¹²⁸ *See, e.g.*, FEIS, App. H at H-7 (“Estimated employment is analyzed and presented as a range based on the existing Limited Export Policy”).

¹²⁹ *See* FEIS at 2-5 to 2-8.

¹³⁰ DEIS Comment Letter at 19.

¹³¹ *Ctr. for Biological Diversity*, 623 F.3d at 645, 648 (“It is black-letter law that NEPA requires a comparative analysis of the environmental consequences of the alternatives before the agency.”); *Methow Valley*, 833 F.2d at 815 (holding that an agency must consider a range of alternatives that is “sufficient to permit a reasoned choice”), *rev’d on other grounds*, *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

B. NEPA Analysis of Alternatives Varying the Limited Export Policy Must Occur Before Adoption of the 2016 Amended Forest Plan.

In an attempt to respond to comments on the DEIS, the FEIS includes a new discussion of the Limited Export Policy in Appendix H. The arguments in the Appendix are misguided. Here, the FEIS states that NEPA analysis of the Limited Export Policy ~~has~~ been conducted at . . . the programmatic level[] since its adoption.”¹³² It also states that analysis has occurred at the site-specific level, and that “[t]he Policy itself has no environmental effects—implementation of the policy involves further Forest Service action, which is subject to NEPA analysis, including public notice and comment.”¹³³ These statements are incorrect and misleading for the following reasons.

1. *The Forest Service has never conducted a NEPA analysis of the Limited Export Policy.*

Contrary to the statements in the FEIS, the Forest Service has never conducted NEPA analysis of the Limited Export Policy. As raised in the DEIS Comment Letter,¹³⁴ and elsewhere,¹³⁵ the Limited Export Policy has not been subjected to NEPA review since its adoption in 2007. If the FEIS’s reference to completed NEPA review refers to the analysis of alternatives within the FEIS itself, the statement is incorrect for the reasons elaborated in this objection. So, the FEIS’s statement that NEPA analysis of the Limited Export Policy has occurred must be corrected.

This is not the only inaccurate statement in FEIS about the procedural requirements that the Limited Export Policy has fulfilled. The FEIS also misleadingly suggests that the agency adopted the Limited Export Policy pursuant to notice and comment procedures. It states, that “[t]he Forest Service undertook notice and comment rulemaking in adopting regulations allowing the limited export of forest products in Alaska, as well as in granting this authority to the Alaska regional forester.”¹³⁶ If this statement refers to the adoption or renewal of a Limited Export Policy decision from 2007 onwards, it is flatly incorrect, for reasons that have been pointed out elsewhere.¹³⁷ If this statement is referring to the regulation promulgated in 1995 providing the Regional Forester with discretion to approve unprocessed log export, the sentence is correct¹³⁸—but it refers to a regulation authorizing the agency to promulgate the Limited Export Policy, not the Policy itself. The statement is incorrect and the Forest Service must conduct the necessary analysis.

¹³² See FEIS, App. H at H-6.

¹³³ *Id.*

¹³⁴ DEIS Comment Letter at 18-21.

¹³⁵ See Waldo Letter at PDF 4-5.

¹³⁶ FEIS, App. H at H-5.

¹³⁷ See Waldo Letter at PDF 5-6.

¹³⁸ 60 Fed. Reg. 46,890, 46,918, 46,933 (Sept. 8, 1995).

2. *NEPA analysis of the Limited Export Policy cannot be undertaken at the site-specific level.*

The FEIS's statement that NEPA analysis of the Limited Export Policy can be undertaken at the site-specific level is incorrect. The Limited Export Policy is a programmatic policy, applying to all timber sales across the Tongass; any subsequent site-specific project would be proposed under and as an instantiation of a programmatic Forest Plan, and is required by law to comply with that Plan.¹³⁹ To the extent the programmatic Plan internalizes a Limited Export Policy, the policy is also internalized into the Plan's site specific manifestation. The narrower focus of a site-specific project and the fact that it will always internalize past programmatic decisions mean that the review process for such a project is structurally incapable of analyzing the Limited Export Policy. The Forest Service must acknowledge and account for this obvious point in its NEPA analysis.

II. THE TONGASS TIMBER REFORM ACT DOES NOT MANDATE ADHERENCE TO THE LIMITED EXPORT POLICY IN THE 2016 AMENDED FOREST PLAN.

The Draft ROD states that, —to ensure that timber sale offerings are consistent with the agency's obligations under TTRA, timber sales must be offered so long as there is a demand for Tongass timber."¹⁴⁰ It goes on to state that the Limited Export Policy —provides flexibility for the region to balance the economics of timber sales to meet" the TTRA requirement of satisfying market demand.¹⁴¹

A. The Statement in the Draft ROD is Inaccurate as a Legal Matter.

Under the TTRA, the Secretary of Agriculture is required to —seek to provide a supply of timber from the Tongass National Forest which . . . meets the annual market demand for timber from such forest and . . . meets the market demand from such forest for each planning cycle," but only —subject to appropriations, other applicable law, and the requirements of the National Forest Management Act of 1976."¹⁴² As the agency has pointed out elsewhere, —[t]he Courts have steadfastly and unanimously rejected attempts to engraft onto the TTRA a substantive obligation to provide an inflexible harvest level."¹⁴³ In fact, courts have interpreted this provision as

¹³⁹ 16 U.S.C. § 1604(i) (—Resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands shall be consistent with the land management plans.").

¹⁴⁰ Draft ROD at 29.

¹⁴¹ *Id.*

¹⁴² 16 U.S.C. § 539d(a).

¹⁴³ Memorandum of Points and Authorities in Support of Federal Defendants' Motion for Summary Judgment and in Opposition to Plaintiff's and Plaintiff-Intervenors' Motions for Summary Judgment, *Alaska et al. v. U.S. Dep't of Agriculture et al.*, No. 1:11-cv-01122-RJL (July 10, 2015) Doc. 77 at 50 (internal quotation marks omitted) (Dep't of Agriculture *Alaska et al.* Summary Judgment Brief).

hortatory,” requiring that the agency consider market demand and seek to meet market demand.”¹⁴⁴

Likewise, the agency has interpreted this provision of the TTRA to obligate[] the Forest Service to seek to meet annual and planning cycle market demand . . . [T]h[at] goal is a contingent one, to be sought subject to and to the extent consistent with the Forest Service’s other multiple use authorities,”¹⁴⁵ with the statute contemplating a balancing of the market, the law and other uses, including preservation.”¹⁴⁶ Indeed, the FEIS itself articulates the TTRA requirement that the agency seek to meet market demand for Tongass timber while also providing for the multiple use and sustained yield management of the Forest’s renewable resources.”¹⁴⁷

The Draft ROD’s statement that the TTRA requires that timber sales . . . [are] offered so long as there is a demand for Tongass timber”¹⁴⁸ is incorrect, and is flatly contradicted by the agency’s pronouncements in other fora. This error must be corrected.

B. The FEIS’s Position is Logically Incoherent.

The FEIS also states that the Limited Export Policy provides flexibility for the region to balance the economics of timber sales to meet” market demand.”¹⁴⁹ However, as described above, the FEIS’s market demand estimation is itself based on the existence of the Limited Export Policy.¹⁵⁰ The FEIS is thus making a circular argument that the Limited Export Policy is necessitated by a need to meet demand which itself is estimated assuming the continuation of the policy. Reliance on such an unreasonable, self-serving argument is arbitrary and fails to present

¹⁴⁴ *Southeast Conference v. Vilsack*, 684 F. Supp. 2d. 135, 138 (D.D.C. 2010) (quoting *Nat. Res. Def. Council*, 421 F.3d at 809); see also *Alaska Wilderness Recreation & Tourism Ass’n v. Morrison*, 67 F.3d 723, 731 (9th Cir. 1995) (“TTRA envisions not an inflexible harvest level, but a balancing of the market, the law, and other uses, including preservation.”).

¹⁴⁵ Dep’t of Agriculture *Alaska et al.* Summary Judgment Brief at 50 (quoting 16 U.S.C. § 539d(a)).

¹⁴⁶ *Id.*; see also *id.* at 47 (“Contrary to Alaska and the Plaintiff-Intervenors’ depiction, the TTRA does not obligate the Forest Service to actually meet market demand, or even to place a thumb on the scale toward timber harvest when balancing multiple uses. Instead, the TTRA obligates that Forest Service to consider and seek to meet market demand subject to and consistent with its overall multiple-use management obligations.”); see also *id.* at 48 (“Under the TTRA, the USDA retains full discretion to balance market demand for timber with other resource needs and, if it finds appropriate, to strike a balance among the multiple-uses that does not fully meet timber demand on the Tongass.”).

¹⁴⁷ FEIS, App. H at H-6 (emphasis added).

¹⁴⁸ Draft ROD at 29.

¹⁴⁹ *Id.*

¹⁵⁰ See *supra* pp. 23, 27-28.

the public and decision-makers with a clear basis for choice among options, including precluding the export of all Tongass logs.

III. MOVEMENT TOWARDS AN UNLIMITED EXPORT POLICY WOULD BE MISGUIDED AND UNLAWFUL.

The Draft ROD states that “[e]xport allowances beyond that programmatically approved under the current policy will continue to be considered on a case-by-case basis.”¹⁵¹ It states that such departures from the upper bound of the Limited Export Policy could, in some instances, potentially rise ~~even~~ up to 100 percent export where it would further the goals and objectives of the Forest Plan.¹⁵²

Documents received from the Forest Service in response to a request for records, which was submitted earlier this year under the Freedom of Information Act, reveal that the agency is contemplating a frequent—perhaps even ubiquitous—exercise of the ~~case-by-case~~ “upwards departure from the Limited Export Policy, in order to enable positive appraisals of timber sales. These documents disclose that the agency has appraised five timber sales on the most recent Tongass National Forest five-year timber sale schedule, namely the North Kuiu, Three Sisters, Traitor’s Cove, Overlook, and Scott Peak sales.”¹⁵³ The appraisals of these sales indicate that even applying the 50 percent export levels under the Limited Export Policy, timber sales are failing to appraise positively.¹⁵⁴ Consequently, it appears that in connection with all five appraised sales, the Forest Service is considering to depart from the Limited Export Policy,

¹⁵¹ Draft ROD at 30.

¹⁵² *Id.*

¹⁵³ See Letter from Beth G. Pendleton, Regional Forester, U. S. Forest Service, to Holly Harris, Earthjustice (July 25, 2016).

¹⁵⁴ See, e.g., Jorge Enriquez, Acting District Ranger, Memorandum to Earl Stewart, Forest Supervisor, Re: North Kuiu Timber Sale Petersburg Ranger District (Feb. 5, 2016) (“Retaining Regional standard appraised 50% export market percentages, appraising export to Kake, AK and domestic manufacturing to Klawock, AK the sale appraised deficit by -\$2,112,961.”) (North Kuiu Export Memo); E-mail from Austin O’Brien, Supervisory Forester, to Charles Streuli & Robert Dalrymple (June 9, 2016) (explaining that the Three Sisters timber sale appraises negatively at 50 percent export).

allowing for increased export of unprocessed logs—in several cases up to 100 percent—to reach a positive appraisal.¹⁵⁵

Such a use of the “case-by-case” exception to the Limited Export Policy to move towards unlimited export would be misguided as well as unlawful.

A. Movement to a Policy of Further Unprocessed Log Export Is Misguided.

An unlimited export policy would increase the demand for unprocessed timber from the Tongass, resulting in dramatically more logging. The increase in logging would introduce a whole host of increased detrimental impacts to the environment, beyond any disclosed or discussed in the FEIS. Meanwhile, a timber sale program with unlimited export would provide relatively few jobs, because the exported volume requires no local processing.

B. The Agency’s Contemplated Policy of Ubiquitous Upwards Departures from the Limited Export Policy Violates NEPA, the Administrative Procedures Act, and NFMA.

Use of the case-by-case exception surreptitiously to authorize ubiquitous upwards departures from the Limited Export Policy would be unlawful.

Widespread application of this exception amounts to a de facto programmatic agency action. This action would have significant environmental and economic impacts. *Sub rosa* use of an exception to supersede the Limited Export Policy in a significant portion—if not all—of site-specific projects would render the FEIS misrepresentative and legally inadequate. An effective policy of higher—even unlimited—export would render the FEIS’s and Draft ROD’s discussion of a Limited Export Policy misleading. Aside from its other faults, the FEIS would in such a circumstance fail to disclose and analyze the impacts from the export policy that the agency will apply in practice. Given the determinant influence of the export levels assumed under a continued Limited Export Policy,¹⁵⁶ the FEIS’s analysis would be an exercise in abstractions,

¹⁵⁵ See North Kuiu Export Memo at 1 (“I recommend changing the export percent from 50% to 100%, for Sitka Spruce and Western Hemlock for the North Kuiu Timber Sale in order for it to appraise positive and meet FY16 Target.”); Beth G. Pendleton, Regional Forester, Memorandum to Earl Stewart, Forest Supervisor, Re: North Kuiu Timber Sale at 1 (May 6, 2016) (“I approve the request to appraise for, and allow, 100% export of the spruce and hemlock on the North Kuiu Timber sale”); E-mail with Attachment from Daniel O’Leary, Timber Valuation Specialist, to Inga Petaisto & Dave P. Harris (April 8, 2016) (in briefing on economic feasibility, reporting appraisal levels with 82 percent or 100 percent export of spruce and hemlock logs in connection with the Traitor’s Cove, Overlook, and Scott Peak timber sales); E-mail from Austin O’Brien, Supervisory Forester, to Charles Streuli & Robert Dalrymple (June 9, 2016) (noting that the agency “run some other scenarios” involving “analyz[ing] whether or not increasing the allowable export above 50% will get us positive” in connection with the Three Sisters timber sale).

¹⁵⁶ See *supra* pp. 27-28.

and a dead letter, unconnected to the reality of how the 2016 Amended Plan will be implemented. This violates NEPA.

The FEIS and Draft Rod are also deficient as notice of the agency's proposed rule, because the actual policy implemented would be dramatically different from, indeed masked by, the description of the proposed rule. It is telling that our awareness of the possibility of ubiquitous upwards departures from the Limited Export Policy derives from Freedom of Information Act disclosures, and not anything in the proposed rule. The FEIS's and Draft ROD's offhand comments that discrete allowances may be granted above the Limited Export Policy's upper bounds cannot, and in practice do not, suffice as notice of the agency's use of the case-by-case exception to swallow the rule. Unlimited export would thus violate the Administrative Procedure Act's notice and comment requirements.

The failure to analyze a programmatic shift to an unlimited export timber sale program also violates the agency's obligation to balance multiple resource uses under NFMA and the Multiple-Use Sustained-Yield Act. Allowing 100 percent export will increase the volume of timber cut, but will decrease the number of jobs per unit of volume. Thus, it will have greater adverse impacts to wildlife, fish, and other resources, with less corresponding economic benefit. This is a fundamentally different trade-off that requires explicit consideration programmatically.

Documents in the record reveal the significant reduction in jobs per unit of timber resulting from 100 percent export. In the Final Environmental Impact Statement for the 1997 Tongass Land Management Plan (1997 FEIS), the Forest Service originally estimated that logging generated 6.5 jobs per MMBF logged.¹⁵⁷ After that FEIS was printed and just weeks before adopting the corresponding plan, however, the Ketchikan pulp mill closed. The agency published an errata sheet¹⁵⁸ lowering the jobs estimate accordingly, to 4.8 jobs/MMBF.¹⁵⁹ In the 2008 FEIS, the agency's estimate bounced back up to 5.6 jobs/MMBF, despite adoption of the Limited Export Policy in 2007.¹⁶⁰ At 100 percent export, the number drops dramatically, to 3.8 jobs/MMBF.¹⁶¹ In short, the recent shift to unlimited export reduces jobs per unit of timber logged by 32 percent in comparison to the Limited Export Policy and by 42 percent in comparison to the pulp mill era that prevailed until just before the 1997 Forest Plan was adopted. This is a substantial reduction that fundamentally changes the trade-off between timber and other resources and uses. NEPA,

¹⁵⁷ This is calculated by dividing the number of direct jobs estimated (1,724) by the ASQ (267 MMBF). *See* 1997 FEIS (printed, pre-erratum version) at 3-477 (267 ASQ for Alternative 11); *id.* at 3-480 (1,724 direct jobs under Alternative 11).

¹⁵⁸ 1997 FEIS Vol. IV, App. M at M-1, M-4.

¹⁵⁹ This is calculated by dividing the number of direct jobs estimated (1,288) by the ASQ (267 MMBF). *See* 1997 FEIS (corrected version) at 3-476 (267 ASQ for Alternative 11); *id.* at 3-478 (1,288 direct jobs under Alternative 11).

¹⁶⁰ *See* 2008 FEIS at 3-537, Table 3.22-20 (note 3).

¹⁶¹ *See* Alexander, Susan, Memorandum to Inga Petaisto, Re. Employment Coefficients and Indirect Effects, for NEPA Planning: 2012 Update at 1 (Aug. 9, 2012) (2.26 jobs/MMBF for logging plus 1.53 jobs/MMBF for transportation); *see also* USFS, Kuiu SIR at 12, Table 5 (same, and displaying 87 total jobs for a 23 MMBF timber sale).

NFMA, and the Multiple-Use Sustained-Yield Act require the Forest Service to disclose the impacts of this transformation and address alternatives to it programmatically.

For these reasons, the agency should not, and legally cannot, move towards an unlimited export policy by ubiquitous invocation of a case-by-case allowance for exports in excess of the upper bound of the current Limited Export Policy, as it has already begun to do in 2016. It would be misguided and unlawful if the agency were to authorize such upward departures in a significant portion of site-specific projects under the 2016 Amended Forest Plan.

* * *

The Regional Forester's implementation of the Limited Export Policy requires NEPA analysis within the 2016 Amended Forest Plan FEIS. Alternatives that would vary the Limited Export Policy are squarely within the purpose and need of the 2016 Amended Forest Plan, but were not considered in the FEIS. This omission violates NEPA. Only by including such alternatives can the agency and public consider the full array of tradeoffs and environmental impacts associated with the 2016 Amended Forest Plan. NEPA analysis of the Limited Export Policy has not occurred in connection with the agency's adoption of the policy, nor can it occur at the site-specific level. NEPA analysis of the Limited Export Policy thus must occur within the programmatic analysis of the 2016 Amended Forest Plan under which limited exports would be authorized and take place. Additionally, the agency should not, and legally cannot, attempt to employ the case-by-case exception to the Limited Export Policy's upper bound in a significant portion of site-specific projects under the 2016 Amended Forest Plan.

SOCIOECONOMIC COSTS OF LOGGING

In comments on the DEIS, the commenting parties pointed out that the DEIS disclosed the economic benefits of logging without disclosing the economic costs.¹⁶² Reasonable estimates show, for example, that the economic value of hunting and wildlife viewing alone dwarf those of the timber sale program.¹⁶³ A new study, published subsequent to the DEIS Comment Letter, makes similar findings even more pointedly:

Thus, the economic value to society foregone by scheduling Tongass old-growth timber for harvest is, by itself, greater than the stumpage received for this timber. When adding this opportunity cost to the agency cost of planning timber sales, costs exceed benefits by a ratio of 15. This opportunity cost associated with lost welfare values when scheduling old growth timber for harvest can

¹⁶² See DEIS Comment Letter at 21-22.

¹⁶³ See *id.* at 21 & n.88

be directly calculated for each management alternative based on the proposed acres of old growth scheduled for harvest.¹⁶⁴

Similarly, the social cost of carbon lost through the timber sale program is probably many times greater than the economic value of the timber sale program.¹⁶⁵ The FEIS does not correct these problems. By focusing on the economic benefits of logging without the economic costs, the FEIS creates a misleading picture in violation of NEPA.¹⁶⁶

PUBLIC COSTS

As pointed out in comments on the DEIS, the Tongass timber sale program is extremely expensive for taxpayers, imposing public costs far out of proportion to the relatively small economic benefits.¹⁶⁷ The DEIS contained substantial errors and created a significantly misleading picture in violation of NEPA.¹⁶⁸ The FEIS acknowledges some of these errors and fixes them,¹⁶⁹ but in the process makes others. It presents gross revenues falsely labeled as “net,” it presents inconsistent and wildly contradictory data about purported revenues due to erroneous discounting, it fails to disclose all costs, and it fails to perform any kind of meaningful analysis of the costs and revenues of the timber sale program in light of purported economic benefits. The FEIS continues to present a significantly false and misleading financial analysis in violation of NEPA, NFMA, and the Multiple-Use Sustained-Yield Act.

In the five fiscal years from 2009 to 2013, the Forest Service spent an average of \$22.3 million per year on the Tongass timber sale program and received an average of \$1.7 million in revenues. The resulting annual loss to taxpayers was about \$20.5 million.¹⁷⁰ Using a somewhat different measure for a different time period, the U.S. Government Accountability Office (GAO) reached similar conclusions: “The 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.”¹⁷¹ By this measure, the average loss was \$11.4 million.

¹⁶⁴ Hjerpe, *Willingness to pay for ecosystem conservation in Alaska’s Tongass National Forest: a choice modeling study*, 21 *ECOLOGY AND SOC’Y* Art. 8 at PDF 10 (2016).

¹⁶⁵ See DEIS Comment Letter at 21-22; see also *infra* pp. 56-57.

¹⁶⁶ See *infra* p. 57.

¹⁶⁷ DEIS Comment Letter at 22.

¹⁶⁸ *Id.* at 22-25.

¹⁶⁹ See FEIS, App. I at I-145. The corrected numbers show that actual revenues are a fraction of what was reported in the DEIS. Compare DEIS at 3-482, Figure 3.22-17 (displaying about \$65 million revenue for Alternative 5 in Years 1-5) with FEIS at 3-517, Figure 3.22-17 (displaying about \$7.3 million revenue for the same alternative in the same time period).

¹⁷⁰ Headwaters Report 71 at 21.

¹⁷¹ U.S. Government Accountability Office, *Tongass National Forest, Forest Service’s Actions Related to Its Planned Timber Program Transition* at 7 (Apr. 2016) (GAO 2016).

Unfortunately, whichever measure is used, the FEIS contains no information on actual revenues or expenditures on the timber sale program, but contains only projections that include substantial mistakes and are far out of alignment with recent actual costs and revenues.

The FEIS shows that from 2009 to 2013, “Total Tongass-Related Employment” in the timber industry averaged 102 jobs.¹⁷² Thus, using the revenue calculations in the Headwaters study, each timber industry job created by the Tongass timber sale program cost taxpayers a little over \$200,000. The same chart in the FEIS shows that from 2005 to 2014, the average jobs number was 124.¹⁷³ Using the GAO’s revenue calculations, those jobs cost the taxpayers a little over \$90,000. Whether one uses the numbers from Headwaters or the GAO, the Tongass timber sale program shows extremely poor value for the money. This is an issue that should be disclosed thoroughly and candidly in the FEIS, but the FEIS instead contains important errors and inconsistencies, and portrays the information in a misleading manner that makes it impossible to extract meaningful conclusions. This violates NEPA, NFMA, and the Multiple-Use Sustained-Yield Act.

First, the use of the term “net revenues” throughout the Financial Analysis section of the FEIS is false and misleading.¹⁷⁴ The numbers presented are not net revenues at all—they are stumpage values, *i.e.*, gross revenues.¹⁷⁵ Apparently, the term “net” in the FEIS comes from the fact that stumpage values are calculated as pond log values, which account for loggers’ profit and risk, minus loggers’ costs.¹⁷⁶ In that sense, stumpage values are the “net” value to the purchaser, but they are not net revenues to the government. They are gross revenues.

The term “net revenue” has a commonly understood meaning in the English language: gross revenue minus costs.¹⁷⁷ Indeed, the DEIS used the term correctly, noting that the values presented were “net of Forest Service costs”¹⁷⁸ Unfortunately, the numbers presented in the DEIS did not actually deduct agency costs, so although the term was defined correctly, the

¹⁷² See FEIS at 3-485, Table 3.22-4.

¹⁷³ See *id.*

¹⁷⁴ The DEIS Comment Letter discussed the use of “net revenues” at page 23. The FEIS uses the term in a different way, which of course could not be foreseen at the time of the comment letter.

¹⁷⁵ See FEIS at 3-518 (“the net revenues presented in Table 3.22-16 are stumpage values. . . . These values are assumed to be the price the timber buyer pays for the log (bid price). These values represent revenue that would be generated for the federal government”); see also *id.* at 3-516 (“The resulting stumpage value is assumed to be the price the timber buyer pays for the log (bid price)”); *id.*, App. B at B-19 (“Stumpage value is the value of the timber at the site and is considered receipts to the federal government for a timber sale.”).

¹⁷⁶ See *id.* at 3-516, 3-518.

¹⁷⁷ See, e.g., W. Pirraglia, *What Is the Difference Between Net Revenue & Operating Income?*, HOUSTON CHRONICLE (“Net revenue equals gross revenue minus directly related selling expenses.”).

¹⁷⁸ DEIS at 3-481.

numbers were wrong.¹⁷⁹ The FEIS corrects the misstatement about agency costs but in so doing creates a new error. Instead of deducting agency costs to obtain the net revenue, the FEIS presents the stumpage values (gross revenue) while retaining the term “net revenue.” This is a misuse of the term that makes the FEIS confusing and misleading, suggesting net revenues are higher than actual, thereby violating NEPA.

Moreover, the FEIS makes important new errors in the numbers.¹⁸⁰ Table 3.22-17 presents “discounted” net revenues¹⁸¹ substantially higher than the sum of the undiscounted net revenues for both old-growth and second-growth displayed in Figures 3.22-17 and 3.22-18, a mathematical impossibility.¹⁸² At least one of the tables must be wrong, and they differ substantially. This error makes it impossible for the reader or the decision-maker to know which if any of the tables present the actual expected revenues for the timber sale program, a vitally important consideration. This violates NEPA, NFMA, and the Multiple-Use Sustained-Yield Act.

The following pertinent example illustrates the problem. Figures 3.22-17 and 3.22-18 display undiscounted net revenues for five-year increments for each alternative. For Alternative 5, the projected net revenue from old-growth in Years 1-5 appears to be about \$7.3 million,¹⁸³ and for second-growth about -\$1.0 million.¹⁸⁴ These “are 5-year totals and are not discounted.”¹⁸⁵ Mixing old growth with young growth to produce positive sales, as described in the FEIS,¹⁸⁶ these figures disclose that the Forest Service would expect “net revenues” of about \$6.3 million (\$7.3 million minus \$1.0 million) from all sales total in the first five years combined.

¹⁷⁹ See DEIS Comment Letter at 23.

¹⁸⁰ These errors are new to the FEIS and, therefore, could not have been addressed in comments on the DEIS.

¹⁸¹ As discussed above, the use of the term “net revenues” in the FEIS is false and misleading. Nevertheless, to avoid confusion, the commenting parties use the term here as it is used in the FEIS.

¹⁸² See FEIS at 3-517 to 3-518. Discounted net revenues could be higher than undiscounted net revenues only if a negative discount rate is used. The FEIS, though, claims use of a four percent discount rate, presumably positive. See *id.* at 3-516; see also *id.*, App. B at B-19 (applying discount rate of -4% annually”).

¹⁸³ See FEIS at 3-517, Fig. 3.22-17. Unfortunately, neither the table nor the text discloses the revenue numerically. It must be estimated from a bar graph. Although the exact number cannot be determined, \$7.3 million is close enough to illustrate the point.

¹⁸⁴ See *id.* at 3-518, Fig. 3.22-18.

¹⁸⁵ *Id.* at 3-517, Fig. 3.22-17, and 3-518, Fig. 3.22-18.

¹⁸⁶ See *id.* at 3-517 (“individual timber sales . . . will likely need to include a mix of old growth and young growth to appraise positive”).

This result, though, cannot be squared with the discounted net revenues disclosed in Table 3.22-17. For the same alternative in the same five-year time period, that table displays \$28.2 million in discounted net revenue,¹⁸⁷ more than four times the \$6.3 million in undiscounted net revenue shown in Figures 3.22-17 and 3.22-18. This is an obvious error, because discounted revenue must necessarily be lower than undiscounted revenue.

Using the formula disclosed in Appendix B of the FEIS, it is possible to calculate the discounted net revenues from the undiscounted revenues displayed in Figures 3.22-17 and 3.22-18. The formula is as follows:¹⁸⁸

$$PNV = [PLV - LC]/(1 + d)^t$$

where:

PLV = pond log value

LC = logging costs

t = time (year) of harvest into the future

d = discount rate (4 percent annually)¹⁸⁹

In this formula, PLV – LC (pond log value minus logger costs) is the stumpage,¹⁹⁰ which—as discussed above—is the value called “net revenue” in Figures 3.22-17 and 3.22-18. Because the \$6.3 million stumpage displayed in those two tables is a ~~5~~-year total[],¹⁹¹ the revenue each year should be one-fifth that sum or \$1.26 million, assuming even distribution of timber sale receipts over the five-year period. Therefore, the discounted net revenue for the first five-year period, using the numbers disclosed in Figures 3.22-17 and 3.22-18, would be as follows:

¹⁸⁷ See *id.* at 3-517, Table 3.22-17.

¹⁸⁸ In the appendix, the calculation is called Present Net Value (PNV), *see id.*, App. B at B-19, but it is the same thing as “discounted net revenue” in Table 3.22-17. In both cases, it is simply the expected price the timber buyer will pay, or stumpage, discounted to present value at a rate of four percent annually. Compare *id.* with *id.* at 3-516.

¹⁸⁹ See *id.*, App. B at B-19.

¹⁹⁰ See *id.* (“Stumpage . . . is an inherent part of the above equation [PLV – LC]”).

¹⁹¹ *Id.* at 3-517, Fig. 3.22-17, note, and 3-518, Fig. 3.22-18, note.

<u>Year</u>	<u>[PLV – LC]/(1 + d)^t</u>	<u>PNV, or discounted net revenue</u>
1	1,260,000/(1 + .04) ¹ =	\$1,211,539
2	1,260,000/(1 + .04) ² =	\$1,164,941
3	1,260,000/(1 + .04) ³ =	\$1,120,135
4	1,260,000/(1 + .04) ⁴ =	\$1,077,053
5	1,260,000/(1 + .04) ⁵ =	\$1,035,628
5-YEAR TOTAL		\$5,609,296

In short, the discounted net revenue for Years 1-5 of plan implementation should be about \$5.6 million according to the revenues displayed in Figures 3.22-17 and 3.22-18, but Table 3.22-17 displays discounted net revenue for that time period in that alternative as \$28.2 million, more than five times higher. This error is merely one representative illustration of a mistake that occurs across all alternatives in all five-year increments in these tables. This is a huge discrepancy that makes it impossible for the reader or the decision-maker to know what the federal government can reasonably expect in revenue from the proposed timber sale program.¹⁹² By displaying such obvious inconsistencies and failing to disclose expected revenues in an intelligible way, the FEIS violates NEPA, NFMA, and the Multiple-Use Sustained-Yield Act.

The FEIS contains another table—Table 3.22-16—purporting to disclose discounted net revenues for different time increments.¹⁹³ These totals appear to be sums of the increments disclosed in Table 3.22-17,¹⁹⁴ which means they are subject to the same problem. It is impossible for the reader to know which, if any, of the tables are correct, given they cannot all be correct.

¹⁹² One possible explanation for the large discrepancy is that Table 3.22-17 was calculated assuming that the revenues displayed in Figures 3.22-17 and 3.22-18 are annual revenues rather than five-year totals. That assumption would produce a result very close to the numbers disclosed in Table 3.22-17. It is directly contrary to Figures 3.22-17 and 3.22-18, which state on their face that they are “5-year totals.” FEIS at 3-517, 3-518. Another possibility is that Table 3.22-17 is correct and that Figures 3.22-17 and 3.22-18 actually display annual revenues rather than “5-year totals,” in which case the FEIS depicts the two Figures incorrectly. The latter result seems highly unlikely, since it would require annual revenues well in excess of the prices bid in recent years. *See generally* DEIS Comment Letter at 24. The FEIS indicates that future prices should be lower, not higher, since they will include some mix of lower-value second growth. *See* FEIS at 3-516 to 3-517. Whatever the explanation, though, there are large, obvious discrepancies in the numbers displayed in the FEIS, making it impossible for the reader to discern expected revenues. Such a large error on such a fundamental issue violates NEPA.

¹⁹³ *See* FEIS at 3-516.

¹⁹⁴ *See id.* at 3-517.

The FEIS purports to disclose “administrative costs.”¹⁹⁵ This is a new addition as the DEIS did not include any disclosure of agency costs.¹⁹⁶ Table 3.22-18 indicates that discounted administrative costs for years 1-15 of plan implementation under the selected alternative (Alternative 5) are projected to be \$52.99 million.¹⁹⁷ In turn, Table 3.22-16 indicates that projected revenues in the same time period for the same alternative are \$46.15 million.¹⁹⁸ Though the FEIS fails to present the calculation, an ambitious reader (or the decision-maker) might compare the two tables and conclude that the Forest Service expects to lose about \$6.84 million, in discounted current dollars, in the first 15 years of plan implementation.

This conclusion would almost certainly be wrong for several reasons. These charts fail to meet the agency’s NEPA obligations and violate NFMA and the Multiple-Use Sustained-Yield Act.

First, as discussed above, the revenue calculations contain enormous discrepancies, making it impossible to rely on the figures disclosed. For the reasons discussed above, it appears Table 3.22-16 substantially inflates actual revenues by miscalculating the “discounted” values, which would mean that the actual losses are much greater than one would conclude by comparing the two charts.

Second, the cost estimates greatly understate actual reported total costs in recent years. The DEIS Comment Letter pointed to record evidence showing that the Forest Service spent an average of \$22.3 million per year on the Tongass timber sale program in the five fiscal years from 2009 to 2013,¹⁹⁹ a figure not disputed in the FEIS. During the same five fiscal years generating those costs (2009 to 2013), timber harvest averaged 30.6 MMBF per year (30,600 mbf),²⁰⁰ with resulting costs of about \$729 per mbf (\$22.3 million/30,600 mbf) on average. Over a longer time period, the GAO reports an average \$12.5 million costs²⁰¹ to produce 33.2 MMBF per year,²⁰² with resulting costs of about \$377 per mbf (\$12.5 million/33,200 mbf). The FEIS, however, projects “administrative costs” of only \$104 per mbf,²⁰³ a fraction of actual costs as reported by either the GAO or Headwaters. The FEIS offers no explanation for this

¹⁹⁵ See FEIS at 3-518 to 3-519.

¹⁹⁶ For this reason, of course, it was not possible to comment on this section of the FEIS previously.

¹⁹⁷ FEIS at 3-519, Table 3.22-18.

¹⁹⁸ *Id.* at 3-516, Table 3.22-16.

¹⁹⁹ See DEIS Comment Letter at 22; Headwaters Report at 21.

²⁰⁰ See Timber Harvest History graphs and tables 1952-2015 at 3.

²⁰¹ See GAO 2016 at 7.

²⁰² See Timber Harvest History graphs and tables 1952-2015 at 3.

²⁰³ See FEIS at 3-518.

discrepancy²⁰⁴ and no reason to believe that costs in future years will be lower than those in the past. With much higher costs and much lower revenues than indicated in the FEIS, expected losses will be far, far greater.

Third, the FEIS contains no explicit comparison of costs to revenues and no analysis of whether the benefits are worth the substantial costs. In response to comments on the DEIS, the FEIS asserts that ~~the~~ revised financial analysis . . . provides an estimate of net agency revenues (timber sale revenues minus timber variable costs).²⁰⁵ Unfortunately, this statement is simply not true—no such estimate appears in the FEIS. As discussed above, what the FEIS calls ~~at~~ revenues” are actually gross revenues. While the FEIS includes a (problematic) disclosure of ~~administrative costs,~~” it is not clear whether this is the same thing as ~~timber variable costs.~~” Most fundamentally, though, the FEIS makes no attempt to compare revenues with costs, as promised in the responses to comments. While a determined reader might make a comparison of ~~net revenues~~” on one page to ~~administrative costs~~” disclosed a few pages later (both of which appear to be substantially mistaken), and then compare them with the economic benefits reported in yet a different part of the FEIS, how the agency would evaluate those calculations and trade-offs is left to pure speculation. There is simply no analysis of whether the benefits of the proposed timber sale program are worth the substantial costs to taxpayers, or even what those full costs might be. The FEIS’s failure to provide a meaningful, understandable, and accurate financial analysis violates NEPA, NFMA, and the Multiple-Use Sustained-Yield Act.

Responding to criticisms of the financial analysis in the DEIS, the FEIS also asserts, ~~Evaluating~~ the past and expected future costs and revenues associated with the overall Tongass timber sale program is outside the scope of this Forest Plan amendment.²⁰⁶ This is simply a misstatement of legal requirements. The proposed action has substantial financial costs to the public. These costs are plainly a relevant factor in the balancing of competing multiple uses the Forest Service is required to perform, and the agency is not free simply to ignore them.²⁰⁷ Even if it could, the

²⁰⁴ This lack of explanation alone violates NEPA, which requires agencies to discuss ~~responsible opposing view[s]~~” in the FEIS. 40 C.F.R. § 1502.9(b). Indeed, the Forest Service is even more answerable to the GAO Report than it would ordinarily be to a responsible opposing view, because the report used the Forest Service’s own reporting and the Forest Service agreed with the report’s findings. *See* GAO 2016 at 7 (~~the~~ Forest Service reported an average of \$12.5 million annually in timber-related expenditures”); *id.* at 31 (~~the~~ Forest Service . . . generally agreed with our findings”).

²⁰⁵ FEIS, App. I at I-145.

²⁰⁶ *Id.*

²⁰⁷ *See* 16 U.S.C. §§ 529, 1604(e) (requiring management for multiple use); *id.* § 531(a) (defining multiple use to include utilizing resources ~~in the combination that will best meet the needs of the American people,~~” and ~~with consideration being given to the relative values of the various resources~~”). Public cost is plainly a critical factor in considering the ~~relative values.~~” These statutes make clear that the agency’s choice is ~~not necessarily the combination of uses that will give the greatest dollar return,~~” *id.*, but this very admonition reveals that Congress considered dollar return to be a relevant factor.

FEIS purports to disclose both costs and revenues in its analysis of the impacts of the proposed action. Having undertaken that effort, the FEIS must be accurate and not misleading.²⁰⁸ The inaccurate and misleading information here violates NEPA, just as in *Natural Resources Defense Council v. U.S. Forest Service*.

SUSTAINED YIELD LIMIT

The DEIS Comment Letter noted that the Sustained Yield Limit violates NFMA, the Multiple-Use Sustained-Yield Act, and implementing regulations, because it is calculated from lands deemed not suitable for timber production.²⁰⁹ The FEIS does not correct this problem, but reaffirms that the limit is calculated from ~~—d~~ lands that *may* be suitable for timber production, assuming all of these lands were managed to produce timber without considering other multiple uses or fiscal or organizational capability.”²¹⁰

This method is flawed, because the Forest Service does not have the option of ignoring other multiple uses or fiscal or organizational capability, and must calculate the Sustained Yield Limit only from those lands where timber removal is actually allowed. NFMA,²¹¹ the Multiple-Use Sustained-Yield Act,²¹² and the TTRA²¹³ all require the Forest Service to manage the Tongass in a way that considers and balances multiple resource uses. Implementing regulations require the Forest Service to manage the Tongass for ~~—social, economic, and ecological sustainability,~~²¹⁴ including diversity of plant and animal communities²¹⁵ and multiple human uses.²¹⁶ The plan is designed to achieve those goals and designates lands as suitable or unsuitable for timber production accordingly.²¹⁷ The maximum volume of timber to be sold is that which ~~—can be removed~~” on a sustained yield basis.²¹⁸ Timber on unsuitable lands, however, *cannot* be removed: ~~—No timber harvest for the purposes of timber production may occur on lands not suited for timber production.~~²¹⁹ Therefore, it is a plain language violation of the regulations to allow logging at a volume in excess of what can be removed sustainably from lands suitable for timber production.

²⁰⁸ *Natural Res. Def. Council*, 421 F.3d at 811-12.

²⁰⁹ See DEIS Comment Letter at 25-26.

²¹⁰ FEIS at 3-342 (emphasis added); see also FEIS, App. I at I-33.

²¹¹ 16 U.S.C. § 1604(e).

²¹² *Id.* §§ 529, 531(a).

²¹³ *Id.* § 539d(a).

²¹⁴ 36 C.F.R. § 219.8.

²¹⁵ *Id.* § 219.9.

²¹⁶ *Id.* § 219.10.

²¹⁷ *Id.* § 219.11.

²¹⁸ *Id.* § 219.11(d)(6), (d)(6)(iii).

²¹⁹ *Id.* § 219.11(d)(1).

Yet, that is exactly what the 2016 Amended Forest Plan does. The only enforceable limit the plan contains on logging is the Sustained Yield Limit,²²⁰ which is calculated using unsuitable lands. Any Forest Service Handbook provision requiring such a methodology violates these laws for the same reason.²²¹

CLIMATE CHANGE AND CARBON STORAGE

The Tongass is America's most important carbon forest. It is the largest single forest-carbon sink in the United States, storing hundreds of millions, if not over a billion, tons of carbon. Within the forest, old-growth accounts for most of the Tongass's carbon storage. As such, this forest should take a specially protected place within the Federal Government's efforts to address climate change. Last year, the United States joined governments from around the world in Paris for negotiations on a new agreement under the United Nations Framework Convention on Climate Change; that agreement was signed only months ago. The resulting agreement specifically highlighted the role of forest protection as a carbon sink in the effort to mitigate climate change. The Paris Agreement is only one of several instances in which the Federal Government has committed itself to protecting forests with a view to their benefits for climate change mitigation. As stated in Article 5(1) of the Paris Agreement, as part of the efforts to mitigate climate change, "Parties should take action to conserve and enhance . . . sinks and reservoirs of greenhouse gases . . . including forests."²²² Given these commitments, it is unacceptable for the Forest Service to countenance the continued industrial-scale destruction of its most carbon-valuable old-growth in America's most important carbon forest.

To meet the United States' carbon reduction commitments, the Forest Service should have considered and adopted an alternative that minimizes the amount of old-growth destruction by transitioning out of old-growth logging rapidly and no later than five years. Logging old-growth releases substantial carbon currently captured in centuries-old root systems and undisturbed forest soils—a loss that cannot be offset by forest regeneration in the timeframe relevant to climate change or by storing some carbon in wood products. Only by transitioning out of old-growth logging more rapidly than proposed in any of the alternatives in the FEIS can the Federal Government act as a leader and exemplar in the global effort to mitigate climate change.

²²⁰ See FEIS at 3-347 to 3-348; 2016 Amended Forest Plan at 5-14 (S-TIM-01).

²²¹ See DEIS Comment Letter at 25-26 (citing Forest Service Handbook 1909.12.64.31).

²²² Paris Agreement under the United Nations Framework Convention on Climate Change, art. 5(1) at PDF 22.

I. THE FOREST SERVICE FAILS TO ACCOUNT FOR THE EXCEPTIONAL ROLE OF THE TONGASS IN THE COUNTRY'S COMMITMENT TO CLIMATE CHANGE MITIGATION.

A. The FEIS Fails To Situate the 2016 Amended Forest Plan Within the Federal and International Effort to Mitigate Climate Change by Protecting Forests.

In considering climate change impacts of 2016 Amended Forest Plan alternatives, the FEIS recognizes the Tongass as a critical component in the global carbon cycle.²²³ It acknowledges that land management and other actions taken on the Tongass National Forest can affect climate change at a local, regional, and global scale.²²⁴ As was pointed out in the DEIS Comment Letter, however, the FEIS still fails to situate the 2016 Amended Forest Plan as a crucial policy choice by the Federal Government responding to the international community's efforts to mitigate anthropogenic effects on the carbon cycle.²²⁵

As the DEIS Comment Letter explained, the United States has taken a leading role in efforts to mitigate anthropogenic climate change, and in particular has highlighted its commitment to forest protection in this context.²²⁶ Among global rainforests, northern temperate rainforests play a predominant role in carbon sequestration.²²⁷ Northern coastal temperate rainforest biomes are disproportionately important in regional carbon cycling.²²⁸ Forests of the Western United States, and specifically the Tongass, figure largely in global forests' contribution to climate-change mitigation.²²⁹ In fact, the Tongass's carbon stock accounts for 8 percent of the total carbon stored in United States forests.²³⁰ According to one study, "[t]he Tongass National Forest stores substantially more forest carbon than any other national forest in the United States."²³¹ The Tongass annually removes about 2,787 pounds of atmospheric CO₂ per acre through growth

²²³ FEIS at 3-13.

²²⁴ *Id.* at 3-19.

²²⁵ DEIS Comment Letter at 27-29.

²²⁶ *Id.*

²²⁷ Y. Pan *et al.*, *A Large and Persistent Carbon Sink in the World's Forests*, 333 SCIENCE 988, 992 (2011).

²²⁸ PR 769_05_000065 (D. D'Amore & R. Edwards, *Climate and Carbon in Southeast Alaska: Beyond the Threshold of Change in a Dynamic Landscape* (2014)).

²²⁹ M. G. Ryan *et al.*, *A Synthesis of the Science on Forests and Carbon for U.S. Forests*, ISSUES IN ECOLOGY REPORT NUMBER 13, at 5-7 (Spring 2010) (Ryan).

²³⁰ W. W. Leighty *et al.*, *Effects of Management on Carbon Sequestration in Forest Biomass in Southeast Alaska*, ECOSYSTEMS 1051, 1051 (2006) (Leighty *et al.*).

²³¹ PR 769_05_000062 at 39 (T. M. Barrett, *Storage and Flux of Carbon in Live Trees, Snags, and Logs in the Chugach and Tongass National Forests* (2014)).

and recruitment.²³² The FEIS, however, ignores the Tongass's place, not merely in the carbon cycle generally, but in offsetting or precluding anthropogenic contributions to climate change.

By failing to situate the FEIS alternatives within the context of the Federal Government's commitment to mitigate the effects of anthropogenic climate change through forest protection, the FEIS is incomplete and inadequate. The Tongass, and in particular its old-growth, sequester and store carbon, functioning actively to mitigate the harmful effects of anthropogenic climate change. This ecosystem service is one of the most important multiple uses of the Tongass. The 2016 Amended Forest Plan, however, curtails this use, and does so without even acknowledging that the Federal Government has a policy—and has voiced its commitment to this policy on the international stage—of protecting forests so as to mitigate climate change as a multiple use objective under NFMA. For this reason, the FEIS's incomplete analysis obscures the full importance of the 2016 Amended Forest Plan's climate impacts.

B. The FEIS Misrepresents the Relative Importance of the Tongass and Its Old-Growth Forests in Efforts to Mitigate Global Anthropogenic Climate Change.

NEPA requires federal agencies to consider the extent to which an action and its reasonable alternatives would contribute to climate change.²³³ In conducting the NEPA review of climate-change impacts, an agency should situate these impacts within a "frame of reference for comparing alternatives," such as relevant federal policies for greenhouse gas emissions or climate adaptations "to make clear whether a proposed project's [greenhouse gas] emissions are consistent with such plans or laws."²³⁴ "This approach helps frame the policy context for the agency decision based on its NEPA review."²³⁵

The FEIS fails to set an appropriate frame of reference for the consideration its alternatives' climate change impacts by obscuring the contours of the anthropogenic climate-change phenomenon and which alternatives would either exacerbate or mitigate it, as well as by suppressing consideration of the potential roles of the Tongass in general and its old-growth in particular.

²³² *Id.*

²³³ Memorandum from Christina Goldfuss, Council on Environmental Quality, to Heads of Federal Departments and Agencies, Re: Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews at 9 (Aug. 1, 2016) (CEQ Guidance).

²³⁴ *Id.* at 28-29.

²³⁵ *Id.*

1. *The FEIS fails to set an appropriate frame of reference for the consideration of climate-change impacts by obscuring the timescale of the anthropogenic climate-change phenomenon.*

The FEIS adds references to the timescale on which the carbon fluxes associated with the alternatives would occur. It cites DellaSala's finding that ~~a~~ logged forest would emit substantial amounts of carbon for at least the first 15 years following harvest, and that a young regenerating forest would remain a net carbon emitter for up to 50 years.²³⁶ It also cites Janisch and Harmon's finding that that it can take more than 200 years following a timber harvest for forests to reach equilibrium (i.e., the point where carbon released from the initial harvest as well as ongoing decay of organic materials equals the amount of carbon that is absorbed into the system).²³⁷ As a result, it states that ~~harvesting~~ options proposed in the five alternatives considered would likely result in a net release of carbon in the short to medium timeframe . . . and could remain a net contributor to carbon emissions for more than 200 years.²³⁸

As discussed on pages 31 to 35 of the DEIS Comment Letter,²³⁹ however, the FEIS is inadequate because its discussion of carbon flux remains disconnected from the timescale relevant to climate-change mitigation. The FEIS correctly notes that ~~con~~clusions regarding carbon storage, carbon emissions, and ultimately sequestration can be strongly influenced by the temporal scale examined.²⁴⁰ But it is incorrect to imply that the timescale relevant to climate change impacts is an undefined variable. The scientific consensus is that the relevant timescale for climate change is determinate, specifically under 100 years—a period shorter than the time required for a forest to reestablish equilibrium after disturbance. The Intergovernmental Panel on Climate Change's (IPCC) 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 CO₂ in the year 2100 will have to be around 450 parts per million.²⁴¹ 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."²⁴² With regard to the timing of these necessary ~~large-scale~~ changes," the IPCC found that

²³⁶ FEIS at 3-16.

²³⁷ *Id.*

²³⁸ *Id.* at 3-20.

²³⁹ DEIS Comment Letter at 31-35.

²⁴⁰ FEIS at 3-20; *see also* CEQ Guidance at 26 (stating that NEPA review of climate change impacts associated with biogenic carbon flux should consider inter alia ~~the~~ estimated GHG emissions (biogenic and fossil), carbon sequestration potential, and the net change in carbon stocks relevant in light of the proposed actions and timeframes under consideration").

²⁴¹ 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 10 (O. Edenhofer *et al.* eds., 2014) (Climate Change 2014 Working Group III Report).

²⁴² *Id.*

—[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 below 2°C relative to pre-industrial levels.”²⁴³ 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.²⁴⁴ The relevant timescale of climate-change mitigation measures is thus the next 10 to 15 years. Given this short-term timescale, the best option to preserve forest carbon stores is a reduction in logging.²⁴⁵

The FEIS does not correct the DEIS’s mistake of treating timescale as an undefined variable. As the FEIS recognizes, after logging, a forest takes around 200 years to re-establish equilibrium.²⁴⁶ The re-attainment of similar levels of carbon storage can take even longer.²⁴⁷ The timescale to mitigate climate change, therefore, is shorter—by more than an order of ten—than the period during which a disturbed old-growth stand can return to equivalent levels of carbon storage and sequestration. This observation is central to considering the alternatives’ impacts on climate

²⁴³ *Id.* at 12.

²⁴⁴ K. Brysse, *et al.*, *Climate Change Prediction: Erring on the Side of Least Drama?*, 23 GLOBAL ENV’T 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) (“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.”).

²⁴⁵ R. Birdsey *et al.*, *Mitigation Activities in the Forest Sector to Reduce Emissions and Enhance Sinks of Greenhouse Gases* at 114, in THE IMPACT OF CLIMATE CHANGE ON AMERICA’S FORESTS: A TECHNICAL DOCUMENT SUPPORTING THE 2000 USDA FOREST SERVICE RPA ASSESSMENT (L. A. Joyce & R. Birdsey eds. 2000) (“The effectiveness of reducing harvest depends on temporal and spatial considerations. Reducing harvest can cause a short-term increase in the amount of [carbon] stored in forests because losses of [carbon] to the atmosphere during the removal of biomass and wood processing are avoided.”).

²⁴⁶ FEIS at 3-16, 3-20.

²⁴⁷ PR 769_05_000073 at 700 (M. E. Harmon *et al.*, *Effects on Carbon Storage of Conversion of Old-Growth Forests to Young Forests*, 247 SCIENCE 699, 700 (1990) (“Harvest of old-growth forests reduced C storage for at least 250 years.”) (Harmon *et al.*)).

change. By ignoring this timescale disparity, the FEIS fails to allow for meaningful consideration of climate-change impacts, in violation of NEPA.

2. *The FEIS fails to set an appropriate frame of reference for the consideration of alternatives' climate-change impacts by understating the carbon stores of Southeast Alaska and the Tongass.*

The FEIS also fails to provide a full account of the Tongass's importance in climate-change mitigation, in both absolute and relative terms.

First, the FEIS understates the carbon storage of the Tongass in absolute terms. The FEIS understates aboveground carbon stores by around fifty million tons. At one point, the FEIS estimates the total aboveground carbon in the Tongass as 601 million tons.²⁴⁸ However, a PNW report—also cited in the FEIS²⁴⁹—finds that aboveground carbon stores in the Tongass account for ~~about~~ 650 million tons [of] carbon, equivalent to 2.4 billion tons of CO₂.²⁵⁰

The FEIS also fails to account for forest floor and soil carbon stores, even though these are proportionally more important than aboveground carbon stores. As discussed on pages 30 and 36 of the DEIS Comment Letter,²⁵¹ PNW has postulated that below-ground carbon pools ~~could~~ be as large as the aboveground stores.²⁵² A 2005 study found that aboveground carbon constitutes around 40 percent of total carbon stored in the Tongass, with a conservative estimate that 66 percent of the total was found in soils and 4 percent in roots,²⁵³ a distribution consistent with carbon inventories in other ecosystems.²⁵⁴ Extrapolating from the estimate that there are 650 million tons of aboveground carbon in the Tongass and from the ratio of supra- to sub-terrestrial carbon, the total carbon store of the Tongass would be around 1.625 billion tons of carbon.²⁵⁵

In the absence of estimates of floor and belowground carbon stores, the FEIS's comparisons of alternatives and carbon-related impacts are incomplete, and full analysis is impossible. By obscuring the frame of reference of the 2016 Amended Forest Plan's climate-change impacts, the FEIS prevents meaningful comparison of alternatives in violation of NEPA.

²⁴⁸ FEIS at 3-15.

²⁴⁹ *Id.*

²⁵⁰ PR 769_05_000062 at 39 (T. M. Barrett, *Storage and Flux of Carbon in Live Trees, Snags, and Logs in the Chugach and Tongass National Forests* (2014)); DEIS Comment Letter at 30 (citing Barrett 2014).

²⁵¹ DEIS Comment Letter at 30.

²⁵² *Id.* at 36.

²⁵³ Leighty *et al.* at 1059.

²⁵⁴ *Id.* at 1062.

²⁵⁵ See FEIS at 3-15 (noting there are an estimated ~~650~~ million tons in aboveground tree carbon on the Tongass"). 650 million is 40 percent of 1.625 billion tons.

Second, the FEIS understates the relative importance of the Tongass with respect to climate change effects, by means of incorrect and misrepresentative comparisons. Despite comments addressing the issue on pages 35 to 37 of the DEIS Comment Letter,²⁵⁶ the FEIS still compares the Tongass's above-ground carbon stores to the overall magnitude of the carbon cycle, purportedly –83,500,000 billion metric tons.²⁵⁷ Such a comparison is misguided for several reasons.

The FEIS's figure for the overall size of the carbon cycle is orders of magnitude off the mark. According to the Intergovernmental Panel on Climate Change, the total magnitude of the carbon cycle is closer to 44,750 billion metric tons.²⁵⁸ At the very least, the Forest Service should correct this error.

Even as a matter of evaluating the Tongass's quantitative contribution to climate change mitigation, the FEIS's comparison is inadequate. To compare alternatives and assess the extent of their climate change impacts, the relevant comparison would situate the carbon flux associated with each alternative relative to the specific increment of anthropogenic contributions to the carbon cycle that would raise global average temperature in excess of 2°C above pre-industrial levels, i.e. the increment that must be avoided to mitigate the harms of anthropogenic climate change. The increment of foreclosed greenhouse gas emissions necessary to mitigate the harms of anthropogenic climate change is the quantitative frame of reference in which the alternatives' carbon impacts should be evaluated.²⁵⁹

Most importantly, however, a quantitative frame of reference alone is inadequate to evaluate the climate-change effects attributable to the 2016 Amended Forest Plan. As discussed on pages 27 to 29 of the DEIS Comment Letter, a comparison of carbon fluxes associated with a single project to total global carbon balances, total U.S. carbon emissions, or emissions related to other sectors of the national economy, fails to account for the obviously cumulative nature of the climate change phenomenon.²⁶⁰ Such comparisons should be avoided in NEPA analysis given

²⁵⁶ See DEIS Comment Letter at 35-37.

²⁵⁷ FEIS at 3-15.

²⁵⁸ See Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* at 515 fig. 7.3 (S. Solomon *et al.* eds., 2007) (sum of carbon reservoirs).

²⁵⁹ See CEQ Guidance at 28 (“When discussing GHG emissions, as for all environmental impacts, it can be helpful to provide the decision maker and the public with a recognizable frame of reference for comparing alternatives and mitigation measures.”).

²⁶⁰ DEIS Comment Letter at 27-29; *contra* FEIS at 3-15.

they are not illuminating with respect to the impacts of the considered alternatives, and do not reveal anything beyond the nature of the problem of anthropogenic climate change itself.²⁶¹

The FEIS also presents a flawed comparison of carbon storage in the soils of mature Tongass forests to storage in other forests nationally.²⁶² It correctly states that —mature forests on the Tongass National Forest likely store considerably more carbon compared to younger forests in this area (within the individual trees themselves as well as within the organic soil layer found in mature forests).”²⁶³ To the extent the FEIS describes rates of carbon storage in old-growth forests, however, it presents a misleading understatement. The FEIS cites Smith *et al.*’s estimate that —approximately 70 tons per acre of carbon are stored on the forest floor in the hemlock-Sitka spruce ecosystems found on the Tongass National Forest.”²⁶⁴ Yet the FEIS does not indicate whether the 70 tons per acre figure refers to old-growth or second-growth, or to an average taken across the entire forest. Examination of the source cited indicates that the Forest Service is citing Smith *et al.*’s estimate of carbon stores in timberlands of hemlock and Sitka spruce in the Pacific Northwest, without differentiation between old-growth and second-growth.²⁶⁵ Moreover, the FEIS’s reference to Smith *et al.* also neglects to point out that Smith *et al.*’s references to the hemlock-Sitka spruce forests in the Pacific Northwest draw from Oregon and Washington²⁶⁶ — areas south of the Tongass, in what the Forest Service has identified as forests —in warmer climates” where —accumulation of carbon can decrease overtime as the carbon stored in soils and

²⁶¹ See CEQ Guidance at 11 ([A] statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.”).

²⁶² FEIS at 3-14 (“In some forests found in warmer climates, the accumulation of carbon can decrease overtime as the carbon stored in soils and dead vegetative materials are released through the process of organic decay. However, the cool conditions on the Tongass National Forest slow down the rate of decomposition As a result, mature forests within the Tongass National Forest generally store considerable amounts of carbon on the forest floor and in the soil profile.”).

²⁶³ *Id.* See also B. Law, Presentation, *Role of Forest Ecosystems in Climate Change Mitigation* at PDF 4 (Feb. 2014) (“Old forests store up to ~10 times more carbon in biomass per unit ground area than young forests”) (Law).

²⁶⁴ FEIS at 3-14.

²⁶⁵ See J. E. Smith *et al.*, *How to Estimate Forest Carbon for Large Areas from Inventory Data*, J. FORESTRY at 27, Tbl. 2 (July-August 2004).

²⁶⁶ See *id.* at 26.

dead vegetative materials are released through the process of organic decay.”²⁶⁷ Thus, the FEIS estimate understates the carbon storage in Tongass forests generally, and more so the Tongass’s old-growth forests in particular.

II. THE ANALYSIS IN THE FEIS PRESENTS A MISLEADING AND INCOMPLETE ASSESSMENT OF THE IMPACTS OF THE 2016 AMENDED FOREST PLAN.

A. The FEIS Understates the Relative Importance of Old-Growth Forest in Climate-Change Mitigation.

The FEIS fails fully to compare the differential carbon fluxes of old-growth and second-growth forest. As discussed on pages 31 to 35 of the DEIS Comment Letter,²⁶⁸ the FEIS correctly recognizes that old-growth forests store considerably more carbon as compared to younger forests.²⁶⁹ Old-growth stores include carbon within the mass of large trees, as well as forest soil carbon, which will move back to the atmosphere if these forests are disturbed.”²⁷⁰ As one study put it, “[a]lternative management schemes never match old-growth when evaluated based on the time integral of total carbon in live and dead organic matter.”²⁷¹ As the FEIS recognizes, old-growth forest stands continue to sequester carbon.²⁷² 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.”²⁷³ Pacific Northwest forests were found to increase in biomass even at 300 and 600 years of age.²⁷⁴ 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.”²⁷⁵

Logging old-growth forests thus forecloses sequestration and releases carbon that would have remained stored. As the FEIS states, “the Tongass National Forest would generate a net release of carbon to the atmosphere if active harvest of old growth is pursued (in other words, harvesting old growth instead of young growth could reduce the carbon sequestering ability of the

²⁶⁷ FEIS at 3-14.

²⁶⁸ DEIS Comment Letter at 31-35.

²⁶⁹ FEIS at 3-14.

²⁷⁰ S. Luyssaert *et al.*, *Old-growth Forests as Global Carbon Sinks*, 455 NATURE 213 at 213 (2008) (Luyssaert).

²⁷¹ C. B. Field & J. Kaduk, *The Carbon Balance of an Old-Growth Forest: Building Across Approaches*, 7 ECOSYSTEMS 525, 532 (2004).

²⁷² FEIS at 3-14 (“Furthermore, some studies have indicated that trees can continue to accumulate carbon at increasing rates as they mature, thereby resulting in large amounts of carbon stored annually within mature trees.”).

²⁷³ Luyssaert at 213.

²⁷⁴ K. Lorenz & R. Lal, CARBON SEQUESTRATION IN FOREST ECOSYSTEMS at 120 (2009).

²⁷⁵ Luyssaert at 213.

forest).²⁷⁶ The FEIS correctly observes that, because each of the alternatives considered in detail involves old-growth logging, each of the alternatives would result in a net release of carbon to the atmosphere,²⁷⁷ with Alternative 1 estimated to have the highest contribution to short-, mid-, and long-term carbon emissions²⁷⁸ due to the extent of old-growth forests that could be harvested.²⁷⁹ The FEIS does recognize to an extent the superiority of old-growth forests in mitigating climate change with respect to younger forest.

The FEIS's differential analysis is incomplete, however, because full analysis of climate change mitigation must account for each alternative's net carbon flux, beyond storage rates, differentiating the net carbon fluxes associated with the *logging* of old-growth and second-growth. As discussed on pages 31 to 35 of the DEIS Comment Letter,²⁸⁰ a full analysis would indicate that the carbon flux of an alternative provides less climate change mitigation to the extent it involves more logging of old-growth forests. As we pointed out in comments on the DEIS,²⁸¹ logging an old-growth forest results in a net carbon release; this is true notwithstanding the effects of limited carbon storage in wood products and growth of second-growth forest in its place. As a result of disturbing old-growth forest, forest carbon storage is reduced for at least 250 years.²⁸² Although second-growth 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.²⁸³ In other words, when old-growth forest is logged and replaced by second-growth forest, the young trees' capture of CO₂ in aboveground carbon stores is offset by the more rapid and voluminous release of carbon hitherto stored below ground. The logging of old-growth forests is a "significant source" of climate change exacerbating emissions.²⁸⁴ This is why

²⁷⁶ FEIS at 3-16

²⁷⁷ *Id.* at 3-21.

²⁷⁸ *Id.* at 3-22

²⁷⁹ *Id.* at 3-21

²⁸⁰ DEIS Comment Letter at 31-35.

²⁸¹ *Id.*

²⁸² Harmon *et al.* at 700; *see also* PR 769_05_000091 (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. *See* D. A. DellaSala ed., 2011 at 49.

²⁸³ Luysaert at 213; O.N. Krankina & M. E. Harmon, Forest Management Strategies for Carbon Storage, in FOREST, CARBON AND CLIMATE CHANGE: A SYNTHESIS OF SCIENCE FINDINGS at 85 (2006) ("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.").

²⁸⁴ Harmon *et al.* at 701.

preserving old-growth forest in perpetuity has been described as the “low hanging fruit” in the efforts to mitigate climate change through land management policies.²⁸⁵

By failing to account for the alternatives’ net carbon fluxes, and thus ignoring how an alternative’s net carbon flux turns on its composition in terms of old-growth versus second-growth logging, the FEIS does not factor in the full array of costs and benefits of logging old-growth in its choice of which alternatives to consider. For the same reason, the FEIS is unable fully to analyze the climate change impacts of even the alternatives that it does consider. Thus by obscuring the frame of reference of the 2016 Amended Forest Plan’s climate-change impacts, the FEIS prevents meaningful comparison of alternatives, in violation of NEPA.

B. The FEIS’s Quantification of the Climate-Change Impacts is Incomplete and Deficient.

The FEIS compares the climate-change impacts associated with each alternative by ranking alternatives on the basis of the magnitude or amount of carbon released or stored. It states that “Alternative 1 would result in the lowest potential for carbon storage followed by Alternatives 4, 5, 2, and 3.”²⁸⁶ The FEIS does not, however, estimate precise flux values associated with each alternative, due to the supposedly insuperable complexity inherent in estimating carbon flux.²⁸⁷ Due to the lack of estimates, the FEIS describes its analysis of alternatives’ climate change impacts as “qualitative.”²⁸⁸ As explained below, this characterization is inaccurate; moreover, the analysis is inadequate.

1. *The FEIS’s comparison of carbon impact magnitudes in the absence of estimated net carbon fluxes resulted in deficient quantitative assessment—not a “qualitative” analysis.*

By comparing the carbon storage associated with each alternative, the FEIS’s analysis is necessarily quantitative—not “qualitative”²⁸⁹—regardless of the agency’s labels. Guidance from CEQ states that carbon flux estimates are the best proxy for assessing climate change impacts of an action.²⁹⁰ CEQ Guidance states as a general matter that such estimates are possible, and

²⁸⁵ Law at 4.

²⁸⁶ FEIS at 3-24.

²⁸⁷ *Id.* at 3-21.

²⁸⁸ *Id.*

²⁸⁹ Compare *Qualitative Definition*, MERRIAM-WEBSTER (defining “qualitative” as “for relating to the quality of something”) to *Quantitative Definition*, MERRIAM-WEBSTER (defining “quantitative” as “of or relating to the quantity or amount of something”).

²⁹⁰ CEQ Guidance at 10 (“CEQ recommends agencies use the projected GHG emissions associated with proposed actions as a proxy for assessing proposed actions’ potential effects on climate change in NEPA analysis.”).

should be undertaken.²⁹¹ The FEIS thus should have estimated net carbon flux values associated with each alternative, and compared them on this basis.

There is no excuse for the Forest Service's failure to undertake such quantification.

Quantification tools are widely available, and are already in broad use in the Federal and private sectors, by state and local governments, and globally.²⁹² The Forest Service recognizes that quantification tools are available and should be used in the forest planning process.²⁹³ As was pointed out on pages 37 to 38 of the DEIS Comment Letter,²⁹⁴ the FEIS fails to consider the Forest Service's recent whitepaper, *Baseline Estimates of Carbon Stocks in Forests and Harvested Wood Products for National Forest System Units, Alaska Region*.²⁹⁵ In this report, the agency provides baseline carbon stocks and trends for seven different forest ecosystem carbon pools: above-ground live tree, below-ground live tree, standing dead, understory, down dead wood, forest floor and soil organic carbon.²⁹⁶ It also provides estimates of carbon stored in wood products over longer time periods.²⁹⁷ Inexplicably, the Forest Service relied on a similar white paper published for the Rocky Mountain Region in preparing the DEIS.²⁹⁸ Thus the agency's quantitative comparisons of the carbon effects of each alternative were possible, but avoided.

The FEIS states that precise estimates of carbon flux associated with each alternative were precluded by complexity, stating that "[a] preliminary quantitative (i.e., numeric) assessment is feasible, but the quantitative results would include a large amount of error or uncertainty, such that the calculated differences between the alternatives would be difficult to discern."²⁹⁹ It cites uncertainty as to "when forests will be harvested," "differences . . . in regard to the transportation of wood," "differences . . . in the types of forest products that will be produced," and "differences related to market leakage."³⁰⁰ As a result, the FEIS concludes only that "each of the

²⁹¹ *Id.* at 11 ("This guidance recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions.").

²⁹² *Id.* at 12.

²⁹³ See U.S. Forest Service, Land Management Planning Handbook, Chapter 10 – The Assessments at 30 (2015) (instructing the use of carbon analysis in the assessment stage of forest planning).

²⁹⁴ DEIS Comment Letter at 37-38.

²⁹⁵ U.S. Forest Service, *Baseline Estimates of Carbon Stocks in Forests and Harvested Wood Products for National Forest System Units; Alaska Region* (March 2015) (USFS Baseline Carbon Stocks).

²⁹⁶ *Id.* at 6.

²⁹⁷ *Id.*

²⁹⁸ See DEIS at 6-47.

²⁹⁹ FEIS at 3-21.

³⁰⁰ *Id.*

alternatives would result in a net increase in carbon emissions” without estimating carbon fluxes associated with each alternative.³⁰¹

As was discussed on pages 37 to 38 of the DEIS Comment Letter, the FEIS’s general mention of uncertainty is unacceptable.³⁰² When the FEIS describes uncertainties with respect to variables related to logging and storage, it fails to explain why these variables are so uncertain as to preclude meaningful estimation. “Agencies should disclose the information and any assumptions used in the analysis and explain any uncertainties.”³⁰³ Even where uncertainties exist and bear upon quantification of emissions, a refusal to estimate emissions is unacceptable, as CEQ instructs:

When . . . the complexity of comparing emissions from various sources would make quantification overly speculative, then the agency should quantify emissions to the extent that this information is available and explain the extent to which quantified emissions information is unavailable while providing a qualitative analysis of those emissions.³⁰⁴

At a minimum, when an agency confronts incomplete or unavailable information as part of the environmental review process, NEPA regulations dictate how the agency must address that information.³⁰⁵ “[T]he agency shall include the information in the environmental impact statement” if the missing information is: (1) “relevant to reasonably foreseeable significant adverse impacts;” (2) “essential to a reasoned choice among alternatives;” and (3) “the overall costs of obtaining it are not exorbitant.”³⁰⁶ CEQ has explained that “[t]he evaluation of impacts under § 1502.22 is an integral part of an EIS and should be treated in the same manner as those impacts normally analyzed in an EIS.”³⁰⁷

The need for detailed analysis that acknowledges and accounts for complexity is especially necessary given the importance of the issue of carbon flux in the 2016 Amended Forest Plan.³⁰⁸ As CEQ Guidance states, “[a]gencies should be guided by the principle that the extent of the analysis should be commensurate with the quantity of projected GHG emissions.”³⁰⁹ Given the magnitude and importance of the Tongass and its old-growth forests in United States forests’

³⁰¹ *Id.* at 3-22.

³⁰² DEIS Comment Letter at 37-38.

³⁰³ CEQ Guidance at 16.

³⁰⁴ *Id.*

³⁰⁵ *See Mont. Wilderness Ass’n v. McAllister*, 666 F.3d 549, 559-561 (9th Cir. 2011).

³⁰⁶ 40 C.F.R. § 1502.22(a).

³⁰⁷ 51 Fed. Reg. 15,618, 15,621 (Apr. 25, 1986).

³⁰⁸ 40 C.F.R. § 1502.2(b) (“Impacts shall be discussed in proportion to their significance.”)

³⁰⁹ CEQ Guidance at 11.

mitigation of climate change, the carbon fluxes associated with the FEIS's alternatives requires a greater extent of analysis.

Carbon flux should have been estimated for each of the FEIS's alternatives. The agency should not stop at merely estimating carbon fluxes; it should follow through and describe the impacts associated with these magnitudes of carbon flux. To assess the impacts associated with carbon flux, an obvious tool was and remains available: a corresponding social cost of carbon estimate.³¹⁰ As was mentioned at pages 21 to 22 of the DEIS Comment Letter,³¹¹ as well as in Ernie Niemi's *Socioeconomic Comments: Logging Costs* (2016),³¹² federal agencies including the Department of Agriculture and the Forest Service have, in other settings, calculated the social costs of carbon from federal land management actions. Methods of estimating social cost of carbon must be used in connection with the FEIS alternatives. The exclusion of such quantification of impacts is especially unacceptable in an FEIS that has quantified the benefits of logging that would result in the acknowledged but un-quantified negative externality of net carbon releases.³¹³ An agency cannot —prepare[] half of a cost-benefit analysis, incorrectly claim[ing] that it was impossible to quantify the costs, and then rel[y] on the anticipated benefits to approve the project.”³¹⁴

By failing to use available methods to estimate the carbon fluxes and resultant social costs of carbon associated with each alternative, the FEIS presents a misleading review of impacts, in violation of NEPA.

2. *The FEIS misleadingly suggests that soil-protection measures will have a significant bearing on post-logging carbon flux.*

By avoiding estimates of carbon flux associated with each alternative, the FEIS inaccurately presents the efficacy of soil-protection measures.

The FEIS states that “[a]ll alternatives include standards and guidelines that protect soils, such as standards/guidelines related to harvesting on steep slopes, roads built across steep slopes, and on soil disturbing activities. These measures would help retain carbon stored as organic material in the soil.”³¹⁵

³¹⁰ See *High Country Conservation Advocates v. U. S. Forest Serv.*, 52 F. Supp. 3d 1174, 1190 (D. Colo. 2014) (“[A] tool is . . . available: the social cost of carbon protocol.”).

³¹¹ DEIS Comment Letter at 21-22.

³¹² E. Niemi, *Socioeconomic Comments: Logging Costs* (Feb. 2016).

³¹³ See *High Country Conservation Advocates*, 52 F Supp. 3d at 1191 (holding agency action arbitrary and capricious where NEPA analysis quantified benefits of an agency action while neglecting social cost of carbon estimates that would have quantified its climate-change related negative externalities).

³¹⁴ *Id.*

³¹⁵ FEIS at 3-22.

This statement is misleading to the extent that it suggests that these standards and guidelines can offset the releases of the massive stores of carbon in the soils of old-growth forests. The FEIS has offered no quantification of the carbon stores that would be retained by implementation of these soil-protection measures associated with each alternative. It therefore does not allow for any assessment of the efficacy of these measures. The phrasing of the FEIS, that these measures would ~~help~~ retain carbon stored as organic material in the soil,³¹⁶ might suggest that soil carbon stores would remain intact post-logging. The FEIS, however, provides no factual basis for such an expectation.

To eliminate this potential misunderstanding, the Forest Service should estimate the amounts or percentages of post-logging carbon releases from the soil that would be foreclosed by these standards or guidelines, as part of its estimation of the alternatives' carbon fluxes. At the very least, the Forest Service should clarify that the phrase ~~help~~ retain" should not be construed to imply that carbon stores within these soils would be maintained intact post-logging. As it stands, the FEIS's discussion of the measures is misleading, and violates NEPA.

C. The FEIS's Analysis of the Effects of Climate Change on the Tongass's Resilience and Its Carbon Sequestration and Storage Ability is Incomplete and Inadequate.

NEPA requires that the Forest Service also consider how climate change could affect the Tongass, and how these effects would bear upon the environmental impacts associated with each alternative, especially with regard to ~~biogenic~~" greenhouse gas emissions from land management actions.³¹⁷ As stated in CEQ Guidance:

Climate change can make a resource, ecosystem, human community, or structure more susceptible to many types of impacts and lessen its resilience to other environmental impacts apart from climate change. This increase in vulnerability can exacerbate the effects of the proposed action. . . . Such considerations are squarely within the scope of NEPA and can inform decisions on whether to proceed with, and how to design, the proposed action to eliminate or mitigate impacts exacerbated by climate change.³¹⁸

³¹⁶ *Id.*

³¹⁷ CEQ Guidance at 25 (~~With~~ regard to biogenic GHG emissions from land management actions . . . it is important to recognize that these land management actions involve GHG emissions and carbon sequestration that operate within the global carbon and nitrogen cycle, which may be affected by those actions.").

³¹⁸ *Id.* at 21; *see also id.* at 9 (~~Consistent~~ with NEPA, Federal agencies should . . . take into account the ways in which a changing climate may impact the proposed action and any alternative actions.").

It is recognized that climate change will affect forests in Alaska.³¹⁹ The FEIS recognizes that “[c]limate change could impact the resources currently managed by the Forest Service as well as how the Forest Service manages the Tongass National Forest in the future.”³²⁰ However, the FEIS fails fully to consider specific processes relevant to the Tongass’s resilience to climate change and land-use stressors, and the overall carbon losses from logging that would intensify as a result of climate impacts and proposed logging.

1. *The FEIS fails fully to account for accelerated decomposition rates.*

As discussed on pages 38 to 39 of the DEIS Comment Letter,³²¹ the Forest Service acknowledges that as a result of climate change, Tongass forest soils will become less secure as a store of carbon, and that such a result would be exacerbated by logging. The FEIS observes that “cool conditions on the Tongass National Forest slow down the rate of decomposition,”³²² but that “carbon stored in soils may be released to the atmosphere in the form of carbon dioxide or methane as the climate warms.”³²³ As a result, with “projected increases in average temperatures as a result of climate change,” there could be “release of portions of the carbon currently stored in the Tongass National Forest’s soil layers.”³²⁴ Finally, it recognizes that “the clearing of forested areas during past and ongoing harvesting activities can increase this effect, by increasing the amount of solar energy that is allowed to reach the ground while the forest regenerates following a harvest.”³²⁵

The FEIS’s analysis of accelerated decomposition rates that result from climate change is incomplete. As discussed on pages 38 to 39 of the DEIS Comment Letter,³²⁶ the FEIS should have internalized this change in decomposition rates within estimated carbon fluxes associated with each alternative. Such estimates would have allowed the FEIS to then assess a full picture

³¹⁹ 2008 TLMP AR 603_0684 at 21 (M. Berman *et al.*, *Climate Change and Alaska’s Forests: People, Problems, and Policies* in Center for Global Change & Arctic System Research, *Assessing the Consequences of Climate Change for Alaska and the Bering Sea Region* at 21 (G. Weller & P. A. Anderson eds., 1998)); PR 769_05_002227 (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 (2015) (DellaSala *et al.*, 2015)).

³²⁰ FEIS at 3-24.

³²¹ See DEIS Comment Letter at 38-39.

³²² FEIS at 3-14

³²³ *Id.*; see also *id.* at 3-25 (“Warmer temperatures are expected to result in a loss of carbon stored in leaf litter and soil organic matter, due to increased soil respiration.”).

³²⁴ *Id.* at 3-14.

³²⁵ *Id.*; see also *id.* at 3-25 (“The clearing of forested areas during harvesting or other development actions could increase this effect, by increasing the amount of solar energy that is allowed to reach the ground.”).

³²⁶ DEIS Comment Letter at 38-39.

of how each alternative's logging of old-growth forests would contribute to climate change impacts, including the social costs of carbon. Such estimates would also have allowed for a comparison of how increased decomposition rates would differentially affect old-growth and second-growth forests, given the much higher carbon density of old-growth forest soils.

By failing to evaluate the interaction of climate change and decomposition rate, the FEIS does not allow for meaningful consideration of climate change impacts, in violation of NEPA.

2. *The FEIS fails to address old-growth forest's differential resilience to climate change.*

As was pointed out on pages 39 to 40 of the DEIS Comment Letter in connection with an omission in the DEIS,³²⁷ the FEIS fails to describe the difference in resilience to climate change between old-growth and second-growth forests. This difference is significant because it bears upon the extent to which the Tongass's carbon flux will persist depending on the plan alternatives' differing preservations of old-growth forests.

Scientific literature indicates that in the face of climate change, old-growth forest has a relative advantage as compared to second-growth forest. The increase in average temperatures is likely to reduce forests' abilities to store carbon and regenerate following disturbance relative to their abilities before climate change.³²⁸ —Rising temperatures . . . may lead to forests becoming a weaker sink or a net carbon source before the end of the century.”³²⁹ In the face of these changes, however, in general —[p]rimary forests tend to be more resilient to climate change and other human-induced environmental changes than secondary forests and plantations.”³³⁰ Studies

³²⁷ *Id.* at 39-40.

³²⁸ Ryan at 13.

³²⁹ Climate Change 2014 Working Group III Report at 845.

³³⁰ *Id.* 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) (comparing the adaptation potential to climate change of primary forest (high) and plantation (low)).

have found that North America's Pacific Coastal Rainforests, especially the Tongass, may be particularly resilient to climate change.³³¹

By failing fully to take these studies into account, and, given their findings, evaluate how the alternatives' varying preservation of old-growth forests bears on overall forest resilience, and the Tongass's resulting future net carbon flux, the FEIS does not allow for meaningful consideration of climate change impacts, in violation of NEPA.

III. THE FOREST SERVICE'S DECISION TO ENCOURAGE BIOMASS ENERGY PRODUCTION VIOLATES NFMA AND NEPA AND WILL HASTEN CLIMATE CHANGE.

The 2016 Amended Forest Plan includes biomass energy among renewable energy technologies that the Forest Service commits to "~~encourage~~," even though doing so may override environmentally protective management prescriptions forest-wide or specific to the underlying LUD.³³² That decision should be reversed because, as discussed in the DEIS Comment Letter on pages 122 to 124, pursuing biomass energy on the Tongass will accelerate climate change. Furthermore, the record does not provide a non-arbitrary reason to justify encouraging biomass at the expense of otherwise applicable environmental protections, and the FEIS does not adequately disclose the impacts of doing so, as discussed in the DEIS Comment Letter on pages 120 to 121.

1. *Encouraging biomass energy on the Tongass will accelerate climate change.*

Burning Tongass trees, or even timber byproducts, for biomass energy will contribute to harmful anthropogenic climate change. Proponents of biomass argue that it is carbon-neutral because, unlike with fossil fuels, the carbon released into the atmosphere by burning wood is offset to some degree by carbon that is stored as new vegetation growing in place of whatever was

³³¹ DellaSala *et al.*, 2015 at 9 ("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.").

³³² 2016 Amended Forest Plan at 5-9 (establishing an objective to "~~encourage~~" renewable energy); *id.* at 7-49 (defining "~~renewable energy~~" so as to include biomass); *id.* at 1-5 (establishing that if there is a conflict between directions, Chapter 5 will supersede Chapters 3 and 4).

removed to be burned. Scientists, however, have repeatedly concluded that this theory of carbon accounting is too simplistic, and that when all carbon effects are factored in, biomass energy can often be even worse for the climate than fossil fuel energy.³³³

Two factors affecting the carbon equation make biomass a particularly bad climate choice for the Tongass, as compared with other forests where it is, in any case, likely to be a climate-forcing activity.³³⁴ One, the characteristics of the forest from which biomass is removed have a strong influence on the net carbon result. Biomass produces the worst carbon results when the wood used is from slow-growing, non-logged (*i.e.*, old-growth) forests.³³⁵ Under those circumstances, logging releases far more carbon and is offset by new growth much more slowly than logging, for example, in primarily second-growth forests that hold less carbon to begin with and grow replacement vegetation relatively quickly.³³⁶ Though no one has studied the carbon effects of biomass energy production on the Tongass itself, the Tongass exhibits the two characteristics that scientists have identified as hallmarks of forests in which biomass energy produces a net

³³³ See, e.g., PR 769_05_000862 (D. A. DellaSala & M. Koopman, *Thinning Combined with Biomass Energy Production May Increase, Rather Than Reduce, Greenhouse Gas Emissions*, GEOS INSTITUTE (2015) (DellaSala & Koopman 2015)); A. Repo *et al.*, *Can we produce carbon and climate neutral forest bioenergy?*, 7 GCB BIOENERGY 253 (2015); T. Buchholz *et al.*, *A global meta-analysis of forest bioenergy greenhouse gas emission accounting studies*, 8 GCB BIOENERGY 281, 285, Fig. 3 (2015) (Buchholz 2015); see also J. S. Gunn *et al.*, *Biogenic vs. geologic carbon emissions and forest biomass energy production*, 4 GCB BIOENERGY 239, 239 (2012) (Gunn) (“switching from fossil fuels to wood energy could actually result in increased levels of atmospheric GHGs, at least over a period of decades” (citations omitted)); B. Holtmark, *The outcome is in the assumptions: analyzing the effects on atmospheric CO2 levels of increased use of bioenergy from forest biomass*, 5 GCB BIOENERGY 467 (2013); M.S. Booth & R. Wiles, *Clear cut Disaster: Carbon Loophole Threatens U.S. Forests* at 9 (2010); E. Schulze, *et al.*, *Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral*, 4 GCB BIOENERGY 611 (2012) (Schulze).

³³⁴ For example, T. Buchholz *et al.* found that among 123 peer-reviewed studies that calculated the “payback period,” or length of time necessary to re-sequester the carbon released through burning for biomass, the average payback period regardless of forest type was estimated at 300 years. Buchholz 2015 at 285, Fig. 3; see also Gunn at 240 (“If alternatives to fossil fuels include use of forests where C is emitted and resides in the atmosphere for long periods of time (e.g. decades or longer), a reduction of atmospheric concentrations of CO₂ (e.g. to 350 ppm) will be difficult to achieve and may contribute to some degree of irreversible climate change.” (citations omitted)).

³³⁵ See Gunn at 240 (“Wood energy . . . can reduce the net amount of carbon stored in forest biomass at any moment in time at landscape scales, particularly in natural forest systems with low risk of catastrophic disturbances and relatively slow growth rates.”); Buchholz 2015 at 284 (payback periods in natural forests averaged 2,495 years and ranged up to 4,500 years).

³³⁶ See Schulze at 613 (“old forests . . . store the largest amount of carbon”); FEIS at 3-20 to 3-21 (explaining that net carbon released as a result of logging increases as higher proportions of old-growth forest are logged).

release of carbon over the period of time relevant for avoiding the worst effects of climate change: much of it is natural old-growth forest and it grows relatively slowly.³³⁷ Two, although burning carbon-rich old-growth forest for biomass makes even less sense for the climate than burning second-growth forest or timber byproducts, increased demand for biomass fuel would unavoidably increase carbon releases due to both young- and old-growth logging regardless of what kind of wood is burned, because it would make logging in general more economical. This is particularly true on the Tongass, where the Forest Service is currently struggling to package economically viable timber sales. The FEIS corroborates that biomass demand would increase logging, projecting that “[h]arvest on the Tongass would be considerably higher than the baseline projection” if biomass replaced 30 percent of heating fuel used in Southeast Alaska “based on the growth of markets for mill residues and low and utility grade logs.”³³⁸ In sum, all indications are that encouraging biomass energy production on the Tongass will accelerate, rather than slow, anthropogenic climate change. The Forest Service, therefore, should revise the 2016 Amended Forest Plan to specify that, unlike other renewable energy technologies, the agency should not encourage biomass.

2. *The FEIS does not analyze the climate, health, and environmental effects of biomass energy.*

As discussed on page 125 of the DEIS Comment Letter, the FEIS does not adequately analyze the environmental effects of biomass energy production. These include, for example, harmful air emissions, increases in logging, and a net climate-forcing effect over the time period necessary to avoid the worst effects of climate change. The FEIS does not even adequately disclose the existence of these effects, let alone analyze them.

With respect to air pollution, the FEIS only says about renewable energy projects in general that “[o]perationally, air quality emissions from these projects would likely be negligible, consisting of maintenance activities and worker trips.”³³⁹ That statement is false as it pertains to biomass energy production, which, as explained in the DEIS Comment Letter³⁴⁰ and not subsequently disputed by the agency, operationally emits air pollutants such as carbon monoxide, fine particulate matter, nitrogen dioxide, sulfur dioxide, and volatile organic compounds that can increase the risk of cancer, cardiovascular disease, and adverse reproductive effects.³⁴¹

³³⁷ DEIS at 3-19 (noting that sequestration potential in the Tongass is limited by the fact that most stands have a relatively low growth rate); FEIS at 3-20 (noting, “[t]he Tongass National Forest is unique within the National Forest System in regard to the substantial amount of old growth that is present outside of wilderness areas on the Forest”).

³³⁸ FEIS at 3-494.

³³⁹ *Id.* at 3-23.

³⁴⁰ DEIS Comment Letter at 124.

³⁴¹ J. Lewtas, *Air pollution combustion emissions: Characterization of causative agents and mechanisms associated with cancer, reproductive, and cardiovascular effects*, 636 MUTATION RESEARCH 95 (2007); T. Jayarathne *et al.*, *Emissions of Fine Particle Fluoride from Biomass Burning*, 48 *Envtl. Sci. & Tech.* 12,636 (2014); H. Wang *et al.*, *Source Profiles of Volatile*

With respect to climate, the FEIS again only misleadingly generalizes that “renewable energy projects would offset carbon dioxide emissions generated by facilities that burn fossil fuels, a primary contributor to climate change,”³⁴² skirting the voluminous scientific literature that concludes biomass can result in a net release of carbon, especially within the most relevant time frame for avoiding catastrophic climate change.³⁴³ There is a footnote in the FEIS containing a qualified disclosure that if *all* logged materials are used for biomass fuel, “this would result in a net release of substantial amounts of carbon to the environment,” but it does not evaluate the climate effects of more realistic scenarios entailing partial use for biomass, nor does it identify a net carbon release as a potential effect of the new renewable energy plan components.³⁴⁴

Finally, with respect to increased logging, the FEIS mentions that biomass drives timber demand in the Regional and National Economy section.³⁴⁵ The Forest Service does not make clear, as it must, that a decision to promote biomass will likely have adverse effects on wildlife and other non-timber forest resources due to increased logging.

The Forest Service justifies omitting a detailed analysis of biomass impacts in three ways. First, the agency objects that the 2016 Amended Forest Plan does not “specifically authorize biomass projects,” but only “provides overall strategic direction for management of the Tongass and encourages development of renewable energy without compelling specified Agency actions or guaranteeing specific results.”³⁴⁶ Second, the agency defers analysis of biomass impacts to project-specific NEPA review.³⁴⁷ Third, with respect to the effects of biomass on human health, the agency objects that quantifying these risks is not its role, but the role of EPA and the Alaska Department of Environmental Conservation.³⁴⁸ All three justifications fail.

First, although the 2016 Amended Forest Plan does not specifically authorize biomass projects, it includes an objective that requires land managers to “encourage” renewable energy, and further classifies biomass as a renewable energy.³⁴⁹ By including biomass energy in the group of renewable energy technologies to “encourage,” the Forest Service has made a decision to encourage it. NEPA requires that the agency be fully informed about the environmental effects of that decision. The fact that the agency will also encourage other technologies does not diminish its NEPA obligation with respect to biomass.

Organic Compounds from Biomass Burning in Yangtze River Delta, China, 14 AEROSOL AND AIR QUALITY RESEARCH 818 (2014).

³⁴² FEIS at 3-208.

³⁴³ *See supra* pp. 61-63.

³⁴⁴ FEIS at 3-16 n.5.

³⁴⁵ *See, e.g., id.* at 3-494.

³⁴⁶ *Id.*, App. I at I-117.

³⁴⁷ *Id.* at I-117 to I-118.

³⁴⁸ *Id.* at I-117.

³⁴⁹ 2016 Amended Forest Plan at 5-9; *id.* at 7-49.

Second, project-specific NEPA review is not an adequate substitute for analyzing the effects of biomass energy at the plan level. —A agency may not avoid an obligation to analyze in an EIS environmental consequences that foreseeably arise from a[] [management plan] merely by saying that the consequences are unclear or will be analyzed later when an EA is prepared for a site-specific program proposed pursuant to the [management plan].”³⁵⁰ Later projects must be consistent with the 2016 Amended Forest Plan, which includes the —encourage” objective.³⁵¹ It is foreseeable that encouraging biomass energy may lead to the realization of that technology’s attendant environmental impacts. The Forest Service must analyze those impacts now.

Third, the Forest Service must consider the full range of environmental impacts from biomass before committing to encourage it, including the technology’s human health impacts. The fact that the Forest Service does not have specific expertise in human health does not excuse the agency from its NEPA obligation to gather the necessary information and consider it.³⁵²

In sum, in contrast to other renewable technologies such as hydropower,³⁵³ the FEIS is virtually silent as to foreseeable adverse environmental impacts of biomass energy. Because the 2016 Amended Forest Plan establishes an objective to encourage biomass energy (albeit among other renewable energies), the failure to discuss these effects violates NEPA.

3. *The Forest Service’s decision to encourage biomass energy at the expense of otherwise applicable environmental protections is arbitrary and violates NFMA.*

Through several changes from the 2008 Amended Forest Plan, the 2016 Amended Forest Plan prioritizes biomass energy over the majority of plan-level environmental protections. As discussed in the DEIS Comment Letter on pages 120 to 121, the Forest Service has not adequately explained why it chose to do so. The Draft ROD offers three reasons for the changes: 1) to —aduce existing impediments to economic diversification,”³⁵⁴ 2) to —deviate[] Plan-related impediments to renewable energy production,”³⁵⁵ and 3) to —provide low-carbon energy alternatives” to displace fossil fuel.³⁵⁶ The record, however, contains no analysis indicating that the changes made are necessary or even effective in accomplishing these three goals with regard to biomass energy. Because the changes —compromise another of NFMA’s multiple-use goals

³⁵⁰ *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1072 (9th Cir. 2002)

³⁵¹ 2016 Amended Forest Plan at 6-2.

³⁵² See 40 C.F.R. §§ 1502.16(a), (b) (environmental impact statements must discuss direct and indirect effects of the agency action); *id.* § 1508.8 (—[e]ffects include . . . health . . .”).

³⁵³ See, e.g., FEIS at 3-130 to 3-131 (discussing the effects of hydroelectric projects on fish).

³⁵⁴ Draft ROD at 16.

³⁵⁵ *Id.* at 6.

³⁵⁶ *Id.* at 13; see also FEIS at ES-3.

(environmental preservation),” the Forest Service may not enact them ~~without justification~~” in the record.³⁵⁷ The Forest Service acted arbitrarily and capriciously by adopting these changes.

The 2016 Amended Forest Plan accomplishes the prioritization of biomass energy development over most plan-level environmental protections by means of six changes from the 2008 Amended Forest Plan:

- 1) It includes a broad new objective to ~~encourage~~ renewable energy production.”³⁵⁸
- 2) It defines ~~renewable energy~~” to include biomass energy.³⁵⁹
- 3) It makes the entire forest available for renewable energy sites: ~~all~~ [National Forest System] lands may be suitable for renewable energy sites on a case-by-case basis in consideration of the LUD, ecological and social values, and benefit to Southeast Alaska communities.”³⁶⁰
- 4) It establishes that, in case of a conflict, the new renewable energy direction in Chapter 5 will take precedence over both management prescriptions for individual LUDs and forest-wide standards and guidelines.³⁶¹
- 5) It abandons the ~~avoidance area~~” category that marked 62 percent of the forest as suitable for an energy project only if there was no feasible alternative location under the 2008 Amended Forest Plan.³⁶²
- 6) It deletes many of the transportation and utility systems LUD protections that applied to energy projects under the 2008 Amended Forest Plan.³⁶³

³⁵⁷ *Nat. Res. Def. Council*, 421 F.3d at 809.

³⁵⁸ 2016 Amended Forest Plan at 5-9.

³⁵⁹ *Id.* at 7-49.

³⁶⁰ *Id.* at 5-9; *accord id.* (~~Beach and estuary fringe is suitable for renewable energy sites.~~”).

³⁶¹ *Id.* at 5-8.

³⁶² FEIS at 3-317 to 3-318 (describing avoidance areas), *id.* at 3-325 (explaining that the avoidance areas approach is removed from the action alternatives).

³⁶³ *Compare* 2016 Amended Forest Plan at 5-8 to 5-10 *with* 2008 Amended Forest Plan at 3-128 to 3-133. For example, the 2008 Amended Forest Plan required that in the context of energy projects the Forest Service ~~b]ury or submerge powerlines where feasible,~~” *id.* at 3-131, ~~d]elineate the location of high hazard soils, riparian, and other sensitive areas on project maps to ensure their recognition, proper consideration, and protection during the project,~~” *id.* at 3-132, and ~~e]stablish a baseline inventory, or use an existing inventory of wildlife habitat conditions, preceding or coinciding with [utility] development,~~” *id.* at 3-133. These protective measures have no parallel in the 2016 Amended Forest Plan, though the FEIS misleadingly suggests that some of them will be continued. *See generally, e.g.,* 2016 Amended Forest Plan at 5-1 to 5-14.

These changes mean that in numerous places and circumstances in which a biomass project may have been prohibited as environmentally harmful under the 2008 Amended Forest Plan, the 2016 Amended Forest Plan allows such a project and also subjects it to fewer requirements.

According to the Draft ROD, the reason for the changes is to ~~—~~reduce existing impediments to economic diversification,³⁶⁴ to ~~—~~deviate[] Plan-related impediments to renewable energy production,³⁶⁵ and to ~~—~~provide low-carbon energy alternatives” to displace fossil fuel.³⁶⁶ There is, however, no evidence in the record that the 2008 Amended Forest Plan impeded biomass projects, let alone that the features of that plan that have been removed or deprioritized are the operable impediments.³⁶⁷ They are *restrictions* on renewable energy development, but there is no evidence that in practice they are preventing biomass projects from going forward. By the same token, it is unclear what effect removing and deprioritizing those restrictions will have on biomass projects. The FEIS itself offers conflicting and uncertain predictions about the effect of the changes that are not supported by evidence or analysis.³⁶⁸ In at least one place, the FEIS states that the chance these changes will ~~—~~increas[e] the number or timing of projects and related effects . . . is low as projects are still likely to be built under the 2008 Forest Plan standards and

See also FEIS at 3-47 (~~—~~Steep slopes, as well as riparian and other sensitive areas should be delineated on project maps to ensure their recognition, proper consideration, and protection during the development of renewable energy projects.”).

³⁶⁴ Draft ROD at 16.

³⁶⁵ *Id.* at 6.

³⁶⁶ *Id.* at 13; *see also* FEIS at ES-3.

³⁶⁷ *See generally* PR 769_05_000677 (Tetra Tech, Tongass National Forest Plan Amendment Energy Resource Report (Oct. 2015)) (analyzing trends that affect renewable energy activity in the plan area, but failing to indicate that the 2008 Amended Forest Plan or its components are impediments). There are public comments to the effect that ~~—~~hydropower and other renewable energy projects are effectively precluded in TUS Avoidance LUDs,” but nothing in the record to support them. PR 769_02_000002 at 4-13 (U.S. Forest Service, Tongass National Forest Five-Year Review of the 2008 Land and Resource Management Plan: Public Outreach and Comment Analysis Report at 4-13 (Nov. 2013)). The FEIS does not appear to credit such public comments. *See* FEIS at 3-317 (~~—~~Although special environmental or procedural considerations may be required for [avoidance area LUDs], they do not preclude consideration and use as a [transportation and utility system].”).

³⁶⁸ FEIS at 3-415 (~~—~~the new components are likely to result in more energy project development over the long term”); *id.* at 3-325 (~~—~~the Renewable Energy Plan Components . . . would simplify the process for projects, but would not necessarily result in an increase in the number of projects developed”); *id.* at 3-447 (similar); *id.* at 3-545 (~~—~~the revised components may affect the timing and rate that new projects are proposed and developed on National Forest System (NFS) lands”); *id.* at 3-130 (~~—~~the proposed new direction under Alternatives 2 through 5 would eliminate avoidance areas‘ which could increase the efficiency and likelihood of developing these projects”).

guidelines.”³⁶⁹ The Forest Service did not analyze whether the 2008 Amended Forest Plan is in fact impeding renewable energy projects in general, and biomass projects in particular, and, if so, which plan components present an impediment.

Even assuming *arguendo* that the 2008 Amended Forest Plan impeded biomass projects (or renewable energy projects generally), the agency has not considered whether a mere subset of the changes outlined above would be sufficient to alleviate such an impediment. If it had, for example, the Forest Service might have discovered that the “avoidance area” category creates a substantial barrier to biomass projects as it applies to some avoidance area LUDs, but not all; or that avoiding whole LUDs is problematic, while avoiding beach and estuary fringe is not a significant barrier. Such an analysis would enable the Forest Service to distinguish between environmentally protective plan components that have little effect on whether biomass projects ultimately proceed and those, if any, that impede these projects. Instead, the Forest Service eliminated and deprioritized a sweeping array of protections with no evidence that doing so will meaningfully assist renewable energy development.

As the changes apply to biomass energy, they not only fail to advance but actively conflict with the goal of providing low-carbon energy alternatives to fossil fuel.³⁷⁰ As discussed *supra* pp. 61 to 63, burning Tongass wood for biomass energy is a climate-forcing endeavor. The FEIS does not assert otherwise, and sources the Forest Service cites in the FEIS agree.³⁷¹

In sum, there is no reason to believe the renewable energy changes the Forest Service adopted are a good fit for the goals they were intended to advance, particularly as they pertain to biomass. Therefore, the Forest Service’s decision to adopt these changes is arbitrary and capricious and violates NFMA’s multiple use goals.

* * *

In its relative evaluations of the role of old-growth forests, and the Tongass in particular, in climate-change mitigation, the FEIS makes simple errors, disregards current scientific findings, and, by obscuring the frame of reference of the 2016 Amended Forest Plan’s climate-change impacts, prevents meaningful comparison of alternatives, in violation of NEPA. These fundamental errors must be corrected to provide the public and the decision-maker complete and accurate information regarding the impacts associated with clear-cutting Tongass old-growth for another 16 years and likely much longer.

³⁶⁹ *Id.* at 3-82.

³⁷⁰ Draft ROD at 13; *see also* FEIS at ES-3.

³⁷¹ *See, e.g.*, FEIS at 3-20 (citing DellaSala & Koopman 2015); PR 769_05_000862 (DellaSala & Koopman 2015 at 2 (“There is a mismatch between the deep and immediate cuts that are needed to prevent catastrophic climate change and the emissions trajectory associated with using biomass for energy production, which immediately releases decades to centuries of carbon stored in forests to the atmosphere and requires many decades of regrowth to sequester that carbon again.”)).

TRANSPORTATION

In the DEIS Comment Letter on pages 115 to 118, commenters requested clarification about the priority of direction in the 2015 Draft Amended Forest Plan on an issue that means the difference between a change from the 2008 Amended Forest Plan that will have minor environmental effects and one that will have substantial environmental effects that the agency has neither justified nor analyzed. The Forest Service refused to clarify the issue in the FEIS. As a result, the undersigned must give the environment the benefit of the doubt by assuming the Forest Service has made as dramatic a change as the language in the 2016 Amended Forest Plan supports. If that is not the agency's interpretation, the FEIS and 2016 Amended Forest Plan are impermissibly opaque. These flaws violate NEPA, NFMA, and the APA.

I. THE FOREST SERVICE HAS NOT ADEQUATELY ANALYZED THE ENVIRONMENTAL EFFECTS OF THE NEW TRANSPORTATION DIRECTION.

The new Transportation Systems Corridors direction applies to major roads in place of the former TUS LUD that is in the 2008 Amended Forest Plan.³⁷² The purpose of the Transportation

³⁷² The DEIS Comment Letter requested that the Forest Service clarify the Transportation Systems Corridors direction applies only to major roads as did the TUS LUD that it replaces, because although the DEIS indicated that that is the case, the 2015 Draft Amended Forest Plan itself was unclear. DEIS Comment Letter at 115-16 (explaining that the 2015 Draft Amended Forest Plan defines “transportation system” so as to include the system of all National Forest System roads, creating confusion). The Forest Service responded by reiterating that “[Transportation Systems Corridors] plan components apply only to major road systems such as state and federal highways, railroads, and those identified by the State of Alaska in the current version of the SATP and applicable laws.” FEIS, App. I at I-109; *see also id.* at I-108 (“The transportation systems corridor direction is not intended to address the forest transportation system, which is defined in the glossary in Chapter 7 as “[t]he system of National Forest System (NFS) roads, trails, and airfields on NFS lands (36 CFR 212.1).”). However, the Forest Service did not remove the source of the confusion from the 2016 Amended Forest Plan. To avoid causing confusion, the Forest Service should edit the current definition for “Transportation Systems Corridors” in the 2016 Amended Forest Plan so that it begins, “Major road systems such as” instead of, “Existing and future transportation systems such as” *See* 2016 Amended Forest Plan at 7-65.

Systems Corridors direction is to “facilitate the availability of” Tongass land for major roads.³⁷³ However, Chapter 3 LUD management prescriptions—including many that prohibit or severely restrict roads—also apply to major roads under the 2016 Amended Forest Plan.³⁷⁴ Under the 2016 Amended Forest Plan, “[s]hould conflict or discrepancy between directions occur,” the Transportation Systems Corridors direction supersedes the road-related management prescriptions for the underlying LUD.³⁷⁵

In the DEIS Comment Letter at pages 117 to 118, commenters asked the Forest Service to clarify what kind of scenario would constitute a conflict in which Chapter 5 would supersede other 2016 Amended Forest Plan direction. In particular, commenters requested that the agency explain what will happen when Chapter 3 LUD restrictions would prohibit a major road, in light of the Chapter 5 purpose to facilitate the availability of the Tongass for such roads. The agency refused to clarify these points, responding that “[u]ntil the Forest Service implements this new direction on a site-specific transportation project, providing examples of conflicts of direction, or describing the extent of potential conflicts is not warranted at a programmatic level.”³⁷⁶

In light of the Forest Service’s refusal to clarify what constitutes a conflict of direction under the 2016 Amended Forest Plan, or even to say whether a specific hypothetical scenario presents such a conflict, the undersigned assume the agency intends that the Chapter 5 purpose to “facilitate the availability” of the Tongass for major roads supersedes Chapter 3 road restrictions, at least in some instances. As discussed in the DEIS Comment Letter on pages 117 to 118, the Forest Service has not adequately analyzed or disclosed the effects of that change.

³⁷³ 2016 Amended Forest Plan at 5-10. That the 2008 Amended Forest Plan incorporated a similar purpose does not change the fact that the 2016 Amended Forest Plan presents a new dynamic, because in the 2008 Amended Forest Plan, that purpose was tempered by the use of major road “avoidance” areas that have been deleted from the 2016 Amended Forest Plan. *See* 2008 Amended Forest Plan at 3-128 (stating a similar purpose as a goal); FEIS at 3-313 (explaining that TUS avoidance areas have been deleted); *id.* at 3-317 (describing avoidance areas). The only restrictions in the 2016 Amended Forest Plan comparable to avoidance areas are the LUD-specific restrictions in Chapter 3, which are superseded by the Transportation Systems Corridors direction if the two conflict. *See* 2016 Amended Forest Plan at 1-5 (establishing that Chapter 5 direction supersedes direction in Chapters 3 and 4 when there is a conflict or discrepancy in direction).

³⁷⁴ *See, e.g.*, 2016 Amended Forest Plan at 3-33, 3-36, 3-38 (Research Natural Area LUD); *id.* at 3-76, 3-82 (Wild River LUD); *id.* at 3-24, 3-31 (Nonwilderness National Monument LUD); *id.* at 3-45, 3-50 (Remote Recreation LUD); *id.* at 3-4, 3-20 (Wilderness and National Monument Wilderness LUD); *id.* at 3-51, 3-56 to 3-57 (Municipal Watershed LUD); *id.* at 3-39, 3-42, 3-44 (Special Interest Area LUD); *id.* at 3-70, 3-74 to 3-75 (Land Use Designation II); *id.* at 3-58, 3-62 (Old-Growth Habitat LUD).

³⁷⁵ 2016 Amended Forest Plan at 1-5.

³⁷⁶ FEIS, App. I at I-110.

The Forest Service points out that the DEIS disclosed that “avoidance areas,” which were part of the 2008 Amended Forest Plan, are eliminated from the 2016 Amended Forest Plan.³⁷⁷ But disclosing a change to the plan is not the same as disclosing how that change interacts with other elements of the plan, or the resulting environmental effects. Here, Chapter 3 contains numerous road-restrictive provisions which have an effect similar to the former “avoidance area” status.³⁷⁸ The Forest Service has not disclosed that in addition to the deletion of “avoidance areas,” the backstops in Chapter 3 will be superseded to facilitate major road development.

The combination of eliminating avoidance areas and superseding Chapter 3 road restrictions means that the majority of the Tongass may suddenly be open to major roads. As a result, there is a potential that more major roads will be built, in places where the Forest Service formerly avoided building them and subject to fewer requirements. As the U.S. Fish and Wildlife Service explained in its comments on the DEIS, “[t]he action alternatives . . . do not appear to require” “an analysis demonstrat[ing] that there are no practical alternatives” to siting major roads in old-growth reserves, beach fringe, designated wildlife corridors, and other sensitive areas, “which leads to the presumption that construction of roads and renewable energy facilities are allowed wherever they may be proposed, irrespective of habitat values.”³⁷⁹ “This proposed approach,” the U.S. Fish and Wildlife Service added, “could undermine the integrity of the conservation strategy, which was designed to protect important habitat in specific locations from human impacts.”³⁸⁰ The FEIS does not disclose these potential effects or their environmental impacts, as it must to satisfy NEPA.³⁸¹

For similar reasons, the Forest Service violated its obligations to balance multiple uses on the Tongass under NFMA,³⁸² the Multiple-Use Sustained-Yield Act,³⁸³ and the TTRA because the

³⁷⁷ *Id.* at I-109.

³⁷⁸ *See, e.g.*, 2016 Amended Forest Plan at 3-62 (new roads may only be constructed in the Old-Growth habitat LUD “if no feasible alternative is available”); *see also id.* at 3-33, 3-36, 3-38 (Research Natural Area LUD); *id.* at 3-82 (Wild River LUD); *id.* at 3-31 (Nonwilderness National Monument LUD); *id.* at 3-50 (Remote Recreation LUD); *id.* at 3-20 (Wilderness and National Monument Wilderness LUD); *id.* at 3-51, 3-56 to 3-57 (Municipal Watershed LUD); *id.* at 3-39, 3-42, 3-44 (Special Interest Area LUD); *id.* at 3-70, 3-74 to 3-75 (Land Use Designation II).

³⁷⁹ U.S. Fish and Wildlife Service DEIS Letter at 3-4.

³⁸⁰ *Id.* at 4.

³⁸¹ *Cf.* FEIS at 3-22 to 3-23 (in light of similar changes to the renewable energy direction, noting the potential for increased renewable energy project development); *id.* at 3-131 (in light of similar changes to the renewable energy direction, explaining that it will be simpler to site renewable energy projects in what are considered TUS “avoidance areas” under the 2008 Amended Forest Plan).

³⁸² 16 U.S.C. § 1604(e).

³⁸³ *Id.* §§ 529, 531(a).

agency failed to analyze and consider the environmental impacts of the transportation changes.³⁸⁴ To balance forest uses without acting arbitrarily, the agency must understand how its decision to advance a particular use, such as the building of major roads, will affect other uses and values.

The Forest Service must address this infirmity by providing information about whether the transportation-related changes to the 2016 Amended Forest Plan will likely result in more major roads being built and/or more major roads being sited in places where the Forest Service formerly avoided building them and by analyzing the potential Forest-wide environmental impacts of such a change.

II. THE FOREST SERVICE HAS NOT JUSTIFIED PRIORITIZING MAJOR ROAD PROJECTS OVER ENVIRONMENTALLY PROTECTIVE ROAD RESTRICTIONS FOR EACH LUD.

As discussed in the DEIS Comment Letter on pages 9 and 115 to 118, the Forest Service has not identified any need to make it easier to build major roads. In particular, the agency has not identified a need to open former avoidance areas to major roads by superseding road restrictions for the underlying LUDs, as the agency is apparently doing in the 2016 Amended Forest Plan. The agency merely found that commenters on the Five-Year Review felt the TUS LUD that governed major road projects under the 2008 Amended Forest Plan was “~~o~~erly complex, confusing, and difficult to implement.”³⁸⁵ That finding might support a change that makes direction for major roads clearer, for example, but does not justify the transportation changes in the 2016 Amended Forest Plan, which deprioritize road-restrictive environmental protections in Chapter 3. Because the transportation changes “~~e~~ompromise another of NFMA’s multiple-use goals (environmental preservation),” the Forest Service may not enact them “~~w~~ithout justification” in the record.³⁸⁶

The Forest Service should consider alternatives to the 2016 Amended Forest Plan that narrow the transportation changes so that they serve the identified need to improve the former TUS LUD with direction that is less confusing, etc. without simultaneously and needlessly compromising environmental protection.

III. ALTERNATIVELY, THE FOREST SERVICE VIOLATED NEPA BY FAILING TO CLARIFY THE PRIORITY OF DIRECTION AS IT PERTAINS TO MAJOR TRANSPORTATION PROJECTS.

As discussed in the DEIS Comment Letter on pages 116 to 118, neither the 2015 Draft Amended Forest Plan nor the DEIS clearly indicated how the direction for major roads in Chapter 5 would be applied with other LUD restrictions governing roads. The Forest Service refused to clarify this issue in the FEIS.³⁸⁷ Therefore, even if the agency intends that Chapter 5’s purpose to

³⁸⁴ *Id.* § 539d(a).

³⁸⁵ FEIS at 1-8.

³⁸⁶ *Nat. Res. Def. Council*, 421 F.3d at 809.

³⁸⁷ *See* FEIS, App. I at I-110.

–facilitate” the availability of the Tongass for major roads will *not* supersede Chapter 3’s road-restrictive measures for individual LUDs under the 2016 Amended Forest Plan, the FEIS violates NEPA’s requirement that it be –readily understandable by governmental decisionmakers and by interested non-professional laypersons.”³⁸⁸

The 2008 Amended Forest Plan included, as a significant environmental protection, –avoidance areas” in which major roads could not be built unless there was no feasible alternative. The 2016 Amended Forest Plan eliminates avoidance areas, but it is not clear whether other LUD-specific road restrictions accomplish nearly the same level of protection in the place of avoidance areas.³⁸⁹ The public cannot discern whether a major change in the applicable level of environmental protection has occurred. The Forest Service’s refusal to clarify this question either means that the agency itself does not understand the implications of the transportation amendments, or that it has chosen to –maximize[] agency discretion at a significant cost (i.e. that no one outside the agency can properly judge the adequacy of the Plan)” as the plan relates to transportation.³⁹⁰ Neither option satisfies NEPA’s understandability requirement.

The agency needs to provide clear information about the import and effects of the transportation components of the 2016 Amended Forest Plan, including a clear analysis of how the Chapter 3 LUD-specific road restrictions will interact with the Chapter 5 Transportation Systems Corridors direction, what constitutes a conflict such that Chapter 5 plan components supersede other plan provisions, and what will happen under circumstances in which Chapter 3 would prohibit a major road.

BALANCING LOGGING OBJECTIVES WITH WILDLIFE MANDATES

In deciding to adopt the 2016 Amended Forest Plan, the Forest Service is making a decision to continue unsustainable, subsidy- and export-dependent old-growth logging for at least 10-15 more years, and likely much longer, in the areas of the Tongass where such logging poses the greatest risk to wildlife. As the agency itself admits, the purported transition is illusory: –The only commitment that can be made is that young-growth volume will replace old-growth volume over time as rapidly as the economic availability of young-growth allows.”³⁹¹ Yet the agency is doing so without examining whether the existing wildlife strategies, and the underlying Conservation Strategy, are adequate, and without looking at information, including new scientific opinion, which indicates it is not. The agency, for example, consistently ignores expert concerns regarding the damaging effects of continuing this logging for many years to come.

³⁸⁸ *Oregon Env'tl. Council v. Kunzman*, 817 F.2d 484, 494 (9th Cir. 1987).

³⁸⁹ Strict road restrictions apply in ten of the 13 former avoidance area LUDs. *See supra* n. 378 (listing the ten LUDs with strict road restrictions); FEIS at 3-317 to 3-318 & Tbl. 3.12b-2 (listing the 13 former avoidance area LUDs: Wilderness, Wilderness National Monument, Non-Wilderness National Monument, LUD II, Remote Recreation, Old Growth Habitat, Municipal Watershed, Research Natural Area, Special Interest Area, Wild River, Scenic River, Recreational River, and Experimental Forest).

³⁹⁰ *California ex rel. Lockyer v. U.S. Forest Serv.*, 465 F. Supp. 2d 917, 924 (N.D. Cal. 2006).

³⁹¹ FEIS, App. I at I-34.

In addition to allowing damaging old-growth logging to continue for another decade or more, the 2016 Amended Forest Plan weakens the Conservation Strategy by changing the “Priority of Direction”³⁹² among plan provisions and allowing second-growth logging in vast sections of the Tongass that have been protected for decades. These decisions are not only inconsistent with Conservation Strategy and the scientific foundation regarding the formation of protected habitat and travel corridors on the Tongass, but the agency is making them over the universal objection of experts, and without any substantive analysis.

These decisions violate the Forest Service’s substantive obligation to ensure wildlife viability for a variety of species and result in an arbitrary balancing of competing values in violation of NFMA. Additionally, the agency’s failure to assess and disclose the impacts violates NEPA. These infirmities compel the Forest Service to reexamine alternatives providing for a rapid end to old-growth logging within the next several years and a more cautious approach to second-growth logging in protected or valuable areas.

I. THE 2016 AMENDED FOREST PLAN FAILS TO ENSURE VIABLE, WELL-DISTRIBUTED SPECIES REMAIN ON THE TONGASS.

Given that the Tongass is the first national forest to amend a plan completed under the 1982 Planning Rule using the 2012 Planning Rule,³⁹³ the opportunity for confusion over the 2012 Planning Rule’s requirements for the Tongass is rife. The Forest Service has elected to apply the 1982 regulations to the wildlife aspects of the plan as amended. However, even though the 2016 Amended Forest Plan authorizes additional old-growth logging for more than a decade, if not much longer, and changes the Conservation Strategy in profound and fundamental ways, the Forest Service has refused to reach an independent determination regarding NFMA’s mandatory diversity requirements under either the 1982 Planning Rule or the 2012 Planning Rule. The rationales offered by the Forest Service to avoid this assessment are arbitrary and contrary to law and, therefore, the 2016 Amended Forest Plan violates NFMA.

In the DEIS Comment Letter at pages 48 to 51, commenters addressed the Forest Service’s failure to ensure viability of wildlife on the Tongass. The FEIS confirms,³⁹⁴ and commenters noted,³⁹⁵ that Chapters 2, 3 and 4 of the 2016 Amended Forest Plan are governed by the 1982 Planning Rule. Notwithstanding this direction, the Forest Service implies that the agency does not have to address the impacts of the planning amendment effort on the ability of the Tongass to maintain viable, well-distributed fish and wildlife populations. To the contrary, the agency must not only adhere to those NFMA requirements but provide a rational, non-arbitrary explanation why it has concluded that the 2016 Amended Forest Plan fulfills that mandatory obligation.

³⁹² 2016 Amended Forest Plan at 1-5.

³⁹³ *Tongass National Forest - Land and Resource Management Plan Amendment*, U.S. Forest Service, <http://www.fs.usda.gov/detail/tongass/landmanagement/?cid=stelprd3801708> (last visited Aug. 25, 2016).

³⁹⁴ FEIS at 2-4; 2016 Amended Forest Plan at 1-3.

³⁹⁵ DEIS Comment Letter at 48-49, 51-53.

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.³⁹⁶ The Forest Service in turn adopted the 1982 Planning Rule, which provides: “Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.”³⁹⁷ 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.”³⁹⁸ 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.”³⁹⁹ Stated more directly, “the forest plan must comply with substantive requirements of the Forest Act designed to ensure continued diversity of plant and animal communities and the continued viability of wildlife in the forest, including the requirement that wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.”⁴⁰⁰

Like the 2008 Amended Forest Plan,⁴⁰¹ the 2016 Amended Forest Plan explicitly incorporates these viability obligations.⁴⁰² Indeed, the FEIS explains that NFMA “directs the Forest to manage wildlife habitat to maintain viable and well distributed populations to ensure continued existence in the planning area.”⁴⁰³ Further, for this analysis, “the evaluation of viability includes considerations of the island archipelago environment as well as the best available science related to each species.”⁴⁰⁴

Commenters pointed out that the DEIS’s discussion of direct and indirect species-specific impacts never discussed or described the environmental effects in terms of impacts on the ability to retain viable, well-distributed fish and wildlife populations.⁴⁰⁵ In response, the Forest Service

³⁹⁶ 16 U.S.C. § 1604(g)(3)(B).

³⁹⁷ 36 C.F.R. § 219.19 (2000).

³⁹⁸ *Id.*

³⁹⁹ *Id.*

⁴⁰⁰ *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 961 (9th Cir. 2002) (quoting 16 U.S.C. § 1604(g)(3)(B)).

⁴⁰¹ 2008 Amended Forest Plan 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).”).

⁴⁰² See 2016 Amended Forest Plan at 4-85.

⁴⁰³ FEIS at 3-252.

⁴⁰⁴ *Id.*

⁴⁰⁵ See DEIS Comment Letter at 50.

has added a section on Wildlife Viability to the FEIS.⁴⁰⁶ The new Wildlife Viability section does not assess impacts of the 2016 Amended Forest Plan using current science, but rather attempts to apply the conclusions of the 1997 viability assessment to the amended plan.⁴⁰⁷ The Forest Service defends its strategy with “two related premises”:

First, it can be assumed that if the integrity of the Forest Plan Conservation Strategy is maintained, there is a high likelihood that the Forest Plan Amendment would continue to provide habitat sufficient to support viable well-distributed wildlife populations and therefore maintain the diversity of plant and animal communities. Second, if the Forest Plan Amendment maintains the key habitat factors identified as important to maintaining viability by the panel assessments for each species or species group, then there is a high likelihood that the Forest Plan Amendment would be at least as likely as the current Forest Plan to maintain viable, well-distributed populations of these species or species groups in the planning area.⁴⁰⁸

As explained in the remaining sections of this objection, there are fundamental problems with these premises and with the Wildlife Viability analysis that follows, all of which were addressed in the DEIS Comment Letter at pages 40 to 53. First, the premises rely on the integrity of the conservation strategy being maintained, which is not the case.⁴⁰⁹ Second, they rely on key habitat factors being maintained, which is also not the case.⁴¹⁰ Third, the Wildlife Viability section assumes that less overall logging means fewer impacts to wildlife, which ignores the reality that certain parts of the Tongass that are essential to wildlife will continue to be logged at very high rates under the Amended Plan, creating localized problems with the requirement to ensure viable species remain well-distributed across the Tongass.⁴¹¹ Fourth, the premises and the Wildlife Viability section ignore the vast body of science and expert opinion that has arisen in the nearly two decades since the 1997 assessment, which calls into question the adequacy of the existing measures.⁴¹²

⁴⁰⁶ FEIS at 3-291 to 3-296.

⁴⁰⁷ *Id.* at 3-292 (“The following discussion focuses on the key factors that formed the basis for the conclusions drawn in the 1997 Forest Plan panel assessments in relation to the proposed Forest Plan Amendment.”).

⁴⁰⁸ *Id.* at 3-291 to 3-292.

⁴⁰⁹ *See infra* pp. 85-100.

⁴¹⁰ *See infra* pp. 85-95.

⁴¹¹ *See infra* pp. 79-82.

⁴¹² *See infra* pp. 95-103 (generally); 103-110 (wolves); 110-122 (goshawks); 122-125 (endemic species); 125-128 (northern flying squirrels).

Simply put, the Forest Service's refusal to reach an independent determination based on current information regarding the 2016 Amended Forest Plan's likelihood of ensuring viable, well-distributed species remain on the Tongass⁴¹³ and instead to rely on a nearly-20-year-old analysis to meet its obligation is fundamentally flawed and does not comply with NFMA.⁴¹⁴ It fails to assess the implications of more than a decade of continued, concentrated old-growth logging on vulnerable species, particularly in light of new information about the adequacy of current conservation measures for several species. Moreover, it fails to address changes that weaken the Conservation Strategy (e.g., changing the "Priority of Direction"⁴¹⁵ among plan provisions). As a result of this outdated and insufficient analysis, the planning process failed to use the best available scientific information, as required by 36 C.F.R. § 219.3.

The Forest Service apparently takes the position that conservation measures that were needed to meet the 1982 Rule's diversity and viability requirements can be weakened and even eliminated, but those portions of a forest plan would continue to be in effect and governed by the 1982 regulations until the plan is revised, which could be decades in the future. Here, the Conservation Strategy, which has relied on plan components like undisturbed old-growth reserves, riparian areas and beach fringe for decades, is being undermined solely because the agency wants to gain access to second-growth logging opportunities in those areas. The Forest Service, however, made this decision without any analysis about whether the changes to the Conservation Strategy mean the 2016 Amended Forest Plan continues to provide for plant and animal diversity. This is an untenable position.

NFMA requires that regulations be in place that provide for the diversity of plant and animal communities, and that forest plans comply with those regulations.⁴¹⁶ To the extent the Forest Service interprets 36 C.F.R. § 219.17(c)'s dismissal of the 1982 Planning Rule and 36 C.F.R. § 219.13(a)'s amendment discretion to exempt the 2016 Amended Forest Plan from the diversity provisions of either the 1982 Planning Rule or the 2012 Planning Rule, such an interpretation

⁴¹³ The list of species for which the Forest Service has failed to ensure viability is long. In addition to the species addressed in detail below, the Forest Service has failed to ensure viability of marten, Prince of Wales spruce grouse, bats, amphibians, salmon, and plant species such as the lesser round leaved orchid, to name a few. In the DEIS Comment Letter at pages 74 to 103, commenters requested that the Forest Service disclose more information about the effects of the 2016 Amended Forest Plan on these species and use that information to determine whether the action would threaten the viability of the species. Although the FEIS contains additional information on some species, such as bats and amphibians, the information falls far short of what the Forest Service needs to ensure there will be viable, well-distributed populations of the species on the Tongass.

⁴¹⁴ See, e.g., *The Lands Council v. McNair*, 537 F.3d 981, 992 (9th Cir. 2008) (en banc), *overruled on other grounds by Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008) ("We have approved of forest plans when they are based on the current state of scientific knowledge." (quoting *Seattle Audubon Soc'y v. Moseley*, 80 F.3d 1401, 1404 (9th Cir.1996))).

⁴¹⁵ 2016 Amended Forest Plan at 1-5.

⁴¹⁶ 36 C.F.R. § 219.7(e)(3).

violates NFMA. The Forest Service must make an independent determination that the 2016 Amended Forest Plan complies with NFMA's diversity requirement (i.e., under either 1982 Planning Rule or 2012 Planning Rule), and must support that finding with reasoned analysis and a rational conclusion.

In the case of this amendment, the Forest Service makes it clear that as to wildlife viability requirements, the 2016 Amended Forest Plan is still governed by the 1982 Planning Rule, meaning the agency must fully comply with those mandatory obligations and reach an independent determination regarding the plan's likelihood of ensuring that sufficient habitat remains to provide for viable and well-distributed species on the Tongass. As explained in the following sections of this objection, the Forest Service failed to conduct the necessary analysis or make the necessary determination in this instance. The agency, alternatively, could have pursued the amendment completely under the 2012 Planning Rule, but it did not do so.⁴¹⁷ In this case, the agency acted unlawfully because it failed to comply with either the 1982 Planning Rule or the 2012 Planning Rule.

II. THE FOREST SERVICE FAILS TO BALANCE TIMBER OBJECTIVES WITH WILDLIFE VALUES IN A RATIONAL, NON-ARBITRARY MANNER.

Even if the agency had no mandatory duty to adopt a forest plan that required the Forest Service to maintain sufficient habitat to support viable, well-distributed species, the decision to adopt the 2016 Amended Forest Plan is still arbitrary under NFMA and the other statutes governing Tongass forest plans.

The statutes under which the Forest Service operates when it adopts a forest plan require the agency to balance timber objectives with other forest values such as wildlife, recreation, and subsistence.⁴¹⁸ The agency's decision must strike a balance between meeting the resource needs of the public and protecting the forest resources. Here, the agency arbitrarily favored the subsidy-dependent and export-driven industrial-scale old-growth logging at the expense of communities and areas of the Tongass that have already been the hardest hit by the damaging effects of logging. An arbitrary determination of timber needs skews the balance between meeting timber goals and protecting other uses and resources.

⁴¹⁷ In an isolated sentence in the response to comments, the agency suggests that, even though it need not demonstrate compliance with it, the 2016 Amended Forest Plan "meet[s] the intent, if not the letter," of the diversity provisions of 36 C.F.R. § 219.9. FEIS, App. I at I-30. The suggestion is unsupported by any analysis of the requirements of the 2012 regulation or adequate justification and, as described below, is inconsistent with the entire analysis in the FEIS, the explanation in the Draft ROD, and the plain language of the 2016 Amended Forest Plan, rendering this line of argument arbitrary and contrary to the 2012 Planning Rule.

⁴¹⁸ See 16 U.S.C. § 1604(e) (NFMA); *id.* § 529 (Multiple-Use Sustained-Yield Act); *id.* § 539d(a) (TTRA); *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).

As explained below, the decision to adopt the 2016 Amended Forest Plan is arbitrary because the length of the transition is too long, the agency is proposing to log ecologically important areas, the agency is refusing to consider expert opinion and contrary science, and the FEIS's analysis of wildlife impacts is inadequate. The Forest Service's tendency to underestimate wildlife impacts and underrepresent wildlife goals precludes a proper balancing of objectives under NFMA.⁴¹⁹ Additionally, the agency violates NEPA because misleading and incomplete information is presented in the FEIS.

ECOLOGICAL IMPERATIVE TO END OLD-GROWTH LOGGING

The FEIS and the Draft ROD both ignore the chorus of concern from the nation's preeminent scientists regarding the need to stop old-growth logging and, in particular, the ecological need to stop logging Tongass old-growth given the historical damage already inflicted.

I. THE PORTION OF THE TONGASS LIKELY TO BE LOGGED IS ALREADY APPROACHING FULL IMPLEMENTATION OF THE LOGGING CONTEMPLATED IN THE 2008 AMENDED FOREST PLAN.

The portions of the Tongass that are most likely to be logged under the 2016 Amended Forest Plan are the same ones in which the amount of habitat loss due to logging is already approaching full implementation of the logging contemplated under the 2008 Amended Forest Plan. According to the agency's own analysis, the vast majority of the stands in the Tongass result in negative stumpage value, and the isolated areas that reflect positive stumpage values are located in a very concentrated portion of the Tongass, but these areas are also of critical importance to several old-growth dependent species (e.g., wolves, goshawks, endemics, etc.). As explained below, this means the Forest Service knows that it would have to continue to log these areas of important habitat almost exclusively to develop economically profitable timber sales.

Logging on the Tongass has always been extremely concentrated in a relatively small portion of the forest.⁴²⁰ The natural fragmentation of the Tongass means ~~high-volume~~ forests contiguous

⁴¹⁹ See *Natural Res. Def. Council*, 421 F.3d at 808 (explaining that an inaccurate accounting of one goal illegally skews the agency's balancing: "[i]f the demand for timber was mistakenly exaggerated, it follows that the timber harvest goal may have been given precedence over the competing environmental and recreational goals without justification sufficient to support the agency's balancing of these goals.").

⁴²⁰ PR 769_05_000853 at PDF 82 (Hennon, P. E. *et al.*, A Climate Adaptation Strategy for Conservation and Management of Yellow-Cedar in Alaska (Jan. 2016)) (~~Before~~ the 1990s, most of the harvesting on the Tongass National Forest was disproportionately concentrated on higher productivity sites at lower elevations. These sites were usually adjacent to the beach and within floodplain riparian areas with abundant large Sitka spruce (USDA 2008a.")); PR 769_05_000502 at PDF 26, 54 (Center for Biological Diversity & Greenpeace, Petition to List the Alexander Archipelago Wolf (*Canis Lupus Ligonii*) as Threatened or Endangered Under the United States Endangered Species Act (Aug. 10, 2011)); 2008 TLMP AR 12_00177 at PDF 158 (U. S. Forest Service, Tongass Land Management Plan Revision Final Supplemental Environmental Impact Statement (Feb. 2003)).

at a landscape scale were always rare,”⁴²¹ and logging has already destroyed most of what little there was in the forest. “The highest volume landscape forests in 1954 . . . were reduced by 66.5% region-wide from 243,373 [hectares] in 1954 to 81,611 [hectares] in 2004.”⁴²² The Tongass saw similar declines in the number of patches . . . average patch size, and largest patch size.⁴²³

As explained in the DEIS Comment Letter at pages 43 to 45, the Forest Service calculated average stumpage values per value comparison unit across the Tongass the last time it amended the Tongass forest plan.⁴²⁴ The agency then depicted the average stumpage values per acre on maps of the Tongass.⁴²⁵ The following map presents average stumpage values for old-growth and second-growth in the Tongass the last time the agency amended the forest plan:⁴²⁶

⁴²¹ Albert & Schoen 2013.pdf at 780 (D. Albert & J Schoen, *Use of Historical Logging Patterns to Identify Disproportionately Logged Ecosystems within the Temperate Rainforests of Southeastern Alaska*, 27 CONSERVATION BIOLOGY 774 (2013)).

⁴²² *Id.* at 779.

⁴²³ *Id.* at 779-80.

⁴²⁴ See PR 2451_Summary-OG-only_11-5-07.xls; PR 2456_TotalValByVCU-plusSummary-Phase 3.xls; PR 2457_Summary-OG&YG_11-05-07.xls.

⁴²⁵ See PR 2447_TotalValbyVCU-OGonly_11-5-07.pdf; PR 2448_NICValbyVCU-OGonly_11-5-07.pdf; PR 2449_PositiveValbyVCU_11-5-07.pdf; PR 2454_PositiveValbyVCU-OGonly_11-5-07; PR 2455_TotalValbyVCU_11-5-07.pdf; PR 2458_NICValbyVCU_11-5-07.pdf.

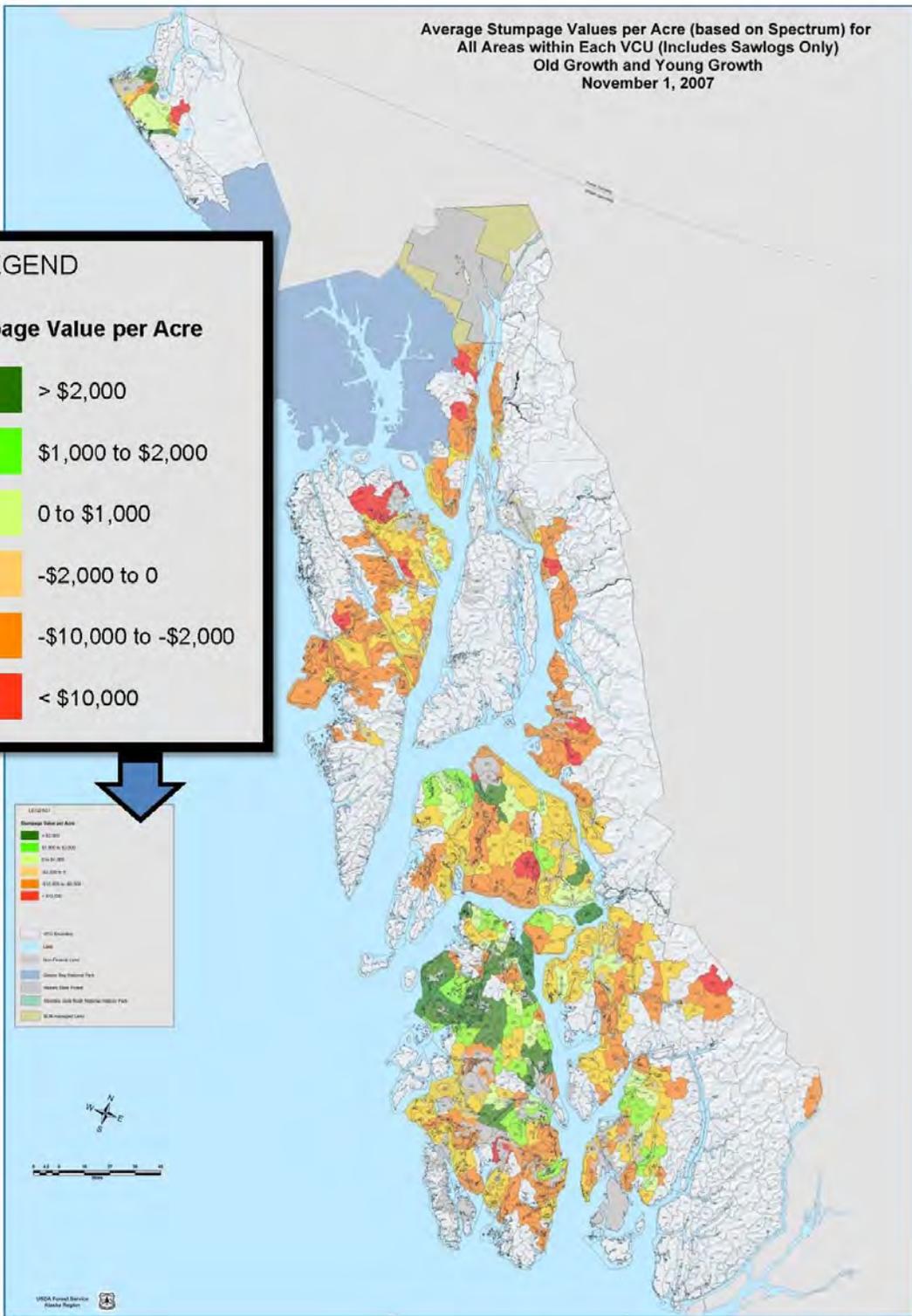
⁴²⁶ See U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only): Old Growth and Young Growth (Nov. 1, 2007).

Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only)
 Old Growth and Young Growth
 November 1, 2007

LEGEND

Stumpage Value per Acre

	> \$2,000
	\$1,000 to \$2,000
	0 to \$1,000
	-\$2,000 to 0
	-\$10,000 to -\$2,000
	< -\$10,000



The Forest Service's analysis demonstrates that with only isolated exceptions, the only areas with positive stumpage values, those reflected in the three shades of green, are located on the Tongass's large southern islands.

By way of illustration, the largest proportional loss (31 percent) of contiguous high-volume forest occurred on northern Prince of Wales Island, where such forests have been reduced by 93.8 percent.⁴²⁷ As the Forest Service admitted in the Big Thorne Supplemental Information Report, "[t]he Big Thorne Project area is one of those places where timber harvest would occur close to full implementation. In other words, most of the productive old-growth forest would be harvested within the constraints of standards and guidelines, buffers and maintenance of old-growth reserves and other non-development LUDs."⁴²⁸ Moreover, because of succession debt,⁴²⁹ the full impacts of that logging have not yet been felt. Habitat quality will worsen as these stands reach stem exclusion. Yet these same areas are the only places on the Tongass the agency might be able provide timber sales that appraise positively.

Notably, the agency refused to conduct that same analysis when it developed the 2016 Amended Forest Plan. Neither the FEIS nor the Draft ROD ever disclose the average stumpage values across the Tongass or the location of the only stands that appraise positively. The analysis also does not appear in the planning record. In failing to provide this information, the Forest Service violates NEPA because the FEIS is incomplete and misleading in its assessment of the adverse impacts on habitat and wildlife. Additionally, the agency's decision to adopt the 2016 Amended Forest Plan is arbitrary under NFMA and the other statutes governing Tongass forest plans because it is based on incomplete information and the agency ignores an important aspect of the problem. These infirmities can only be rectified by conducting the necessary analysis and disclosing the information in an EIS.

II. EXPERTS ACROSS THE WORLD HAVE CALLED FOR AN END TO OLD-GROWTH LOGGING, INCLUDING ON THE TONGASS.

Despite the overwhelming loss of old-growth habitat in these portions of the Tongass, the FEIS and the Draft ROD ignore widespread expert opinion calling for an end to old-growth logging on the Tongass.⁴³⁰

⁴²⁷ Albert & Schoen 2013.pdf (D. Albert & J. Schoen, *Use of Historical Logging Patterns to Identify Disproportionately Logged Ecosystems within the Temperate Rainforests of Southeastern Alaska*, CONSERVATION BIOLOGY, V. 27, No. 4, 774 at 780 (2013)).

⁴²⁸ Big Thorne Supplemental Information Report at 4.

⁴²⁹ See 2008 FEIS at 3-266; D. K. Person & T. J. Brinkman, Chapter 6: *Succession Debt and Roads: Short- and Long-Term Effects of Timber Harvest on a Large Mammal Predator-Prey Community in Southeast Alaska*, in NORTH PACIFIC TEMPERATE RAINFORESTS at 144, 155-160 (G. Orians & J. Schoen eds, 2013) (explaining consequences for deer and wolf dynamics).

⁴³⁰ See DEIS Comment Letter at 42-43, 45-48, 51-52.

The FEIS, for example, ignores the fact that delegates to the United Nations Climate Change Conference reached unprecedented agreement regarding the need to conserve forest resources worldwide. The World Bank explained it as follows:

The 2015 UN climate change conference in Paris was a pivotal moment for forests because their role in combatting climate change was formally recognized. This win for forests builds on the important Warsaw Framework for REDD+ (which stands for reducing emissions from deforestation and forest degradation) that came out of the 2013 UN meetings. This year, 195 developed and developing nations came together to agree on the new climate deal, including the global goal of keeping temperature increase well below two degrees Celsius.⁴³¹

The Intergovernmental Panel on Climate Change ~~pr~~provide[d] rigorous and balanced scientific information” regarding, among other considerations, the need to conserve forest resources.⁴³² This work emphasized the ~~co~~nservation of existing carbon stocks, e.g., conservation of forest biomass, peatlands, and soil carbon that would otherwise be lost,” ~~re~~ducing losses of carbon-rich ecosystems, e.g., reduced deforestation,” and ~~en~~hancement of carbon sequestration in soils, biota, and long lived products through increases in the area of carbon-rich ecosystems such as forests.”⁴³³ And yet, in one of the first programmatic decisions the Forest Service has made since the Paris climate agreement, the agency ignores the science and sets a course to actually increase old-growth logging on the Tongass and continue the unsustainable and destructive practice for another 16 years, and likely much longer.

The FEIS ignores the fact that two former Forest Service chiefs, Jack Ward Thomas and Mike Dombeck declared: ~~It~~ is time to declare old growth off-limits to logging and move on.”⁴³⁴

The FEIS ignores the fact that more than 275 scientists from academia and government urged the Forest Service to end the clear-cutting of the nation’s remaining old-growth forests, including the Tongass.⁴³⁵

⁴³¹ The World Bank, *Outcomes from COP21: Forests as a Key Climate and Development Solution* (Dec. 18, 2015).

⁴³² See Intergovernmental Panel on Climate Change, IPCC Factsheet: What is the IPCC? at 1 (Aug. 30, 2013).

⁴³³ Smith P., *et al.*, *Agriculture, Forestry and Other Land Use (AFOLU) in 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 829 (2014) (Report of Working Group 3).

⁴³⁴ M. Dombeck & J. W. Thomas, *P-I Focus: Declare harvest of old-growth forests off-limits and move on*, Seattle P-I Op Ed (Aug. 23, 2003) at PDF 3.

⁴³⁵ See PR 769_02_000059 (Thomas, J.W. *et al.*, Letter to the President by 78 North American Scientists calling for a national old-growth policy to protect the remaining old-growth on national forest lands throughout the US (June 25, 2014)); Wilson, E.O. *et al.*, Letter to Secretary

The FEIS ignores the fact that last year seven of North America's most prestigious scientific societies (representing a combined membership of over 30,000 scientists and natural resource professionals) called for an end to clear-cut logging of old-growth on the Tongass within the next three years.⁴³⁶

The FEIS ignores the fact that 78 scientists, led by former Forest Service chiefs Thomas and Dombeck, sent a letter to the President of the United States requesting that he direct the Secretary of Agriculture and Chief of the U.S. Forest Service to utilize their authority to craft a National Old Growth Policy that fully protects the remaining old-growth forests on national forests throughout the United States⁴³⁷ These experts explained:

Currently, only about 5-10% of the original old-growth forests that existed prior to European settlement remain in the United States (excluding Alaska's taiga) and most of that occurs in the Pacific Northwest and southeast Alaska. . . . The largest extent of remaining old-growth forest is found in southeast Alaska. But even there, more than half of the largest trees have been logged, and pressure continues to cut the best of what's left. . . .

Old-growth forests are a rare and diminishing legacy throughout the world and the US should take a leadership role in establishing sensible conservation policy. There is a pressing need to conserve what remains, as well as to restore a representation of mature forests to old growth conditions.⁴³⁸

These are expert opinions, offered by some of the most preeminent experts both internationally and domestically, that directly contradict the Forest Service's decision to continue industrial-scale old-growth logging on the Tongass for at least 16 years more years and likely much longer. The agency's decision to ignore expert concerns regarding ecological impacts and their collective call to end the controversy and destruction of old-growth logging in the FEIS violates NEPA. The agency must correct these failings.

Vilsack from 200+ North American Scientists Re: Scientific support for completion of old-growth logging transition on the Tongass rainforest by the end of the Obama Administration (Oct.15, 2014).

⁴³⁶ PR 769_02_000058 (American Fisheries Society *et al.*, Letter to Secretary Vilsack (Jan. 20, 2015)); *see also* Public Comment – Schoen_John (Attachment) at 12-13 (John Schoen letter to Earl Stewart (Feb. 20, 2016) (John Schoen recommending ~~that~~ the Plan Amendment be revised to speed the transition out of old-growth clearcutting (within the next three years))”).

⁴³⁷ PR 769_02_000059 (Thomas, J.W. *et al.*, Letter to the President by 78 North American Scientists calling for a national old-growth policy to protect the remaining old-growth on national forest lands throughout the United States (June 25, 2014)).

⁴³⁸ *Id.*

Similarly, the Draft ROD ignores all of these concerns.⁴³⁹ The agency must explain how it accounted for this contrary expert opinion in reaching its decision to adopt the 2016 Amended Forest Plan, because to do otherwise renders the decision arbitrary under NFMA and the other statutes governing Tongass forest plans.

LOGGING SECOND-GROWTH IN ECOLOGICALLY IMPORTANT AREAS

The 2016 Amended Forest Plan allows 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 is an essential component of the Conservation Strategy. Logging these protected lands compromises the Conservation Strategy and risks the viability of many of the Tongass's most at-risk wildlife species. As explained below, the FEIS entirely fails to analyze the myriad potential effects of this fundamental change in Tongass management.

As the Forest Service was developing the 1997 Forest Plan, the agency's wildlife viability experts identified certain key features upon which they based their viability conclusions. They identified the following management practices and land allocation as plan mechanisms necessary to maintain viable wildlife populations across the Forest:⁴⁴⁰

- a. Existing retentions (wilderness, research natural areas, etc.)
- b. Riparian habitat protection.
- c. Silvicultural systems that emulate natural disturbances, such as small-scale, even-aged or uneven-aged long rotations rather than large-scale, short-rotation clearcutting.
- d. Old-growth reserves appropriately spaced and stratified across the Forest (e.g., habitat conservation areas as proposed by the Interagency Viable Populations Committee [44]).
- e. Retention of current vegetation in the beach and estuary fringe.
- f. Species-specific standards and guides (50).⁴⁴¹

Despite the clarity of the wildlife experts' opinions, the Forest Service irretrievably compromises four of the six features in the 2016 Amended Forest Plan.⁴⁴²

⁴³⁹ See, e.g., Draft ROD at 15-16, 18-23.

⁴⁴⁰ 2008 TLMP AR 10_00103 at 10_013277 (D. Swanston, *et al.*, Scientific Information and the Tongass Land Management Plan: Key Findings from the Scientific Literature, Species Assessments, Resource Analyses, Workshops, and Risk Assessment Panels (Nov. 1996)).

⁴⁴¹ *Id.*

The agency's decision brought overwhelming and virtually unanimous condemnation from the scientific community, but the Forest Service consistently ignores those concerns. NEPA requires agencies to fully consider and disclose the environmental consequences of an agency action before proceeding with that action.⁴⁴³ An EIS must "discuss at appropriate points . . . any responsible opposing view which was not adequately discussed in the draft statement and shall indicate the agency's response to the issues raised."⁴⁴⁴ Disclosure and response to contrary scientific conclusions must be meaningful, including a discussion of the nature and substance of the underlying debate, and must be a part of the EIS itself.⁴⁴⁵ Although an agency does not need to address every uncertainty in its EIS or respond to every critique, it is obligated to directly disclose and respond to significant expert dissent.⁴⁴⁶ The agency must correct its failures to comply with these NEPA obligations.

As explained below, the Forest Service's decision to ignore these concerns also raises fundamental NFMA infirmities. The decision to ignore contrary evidence and refuse to provide a rational explanation renders its decision to adopt the 2016 Amended Forest Plan arbitrary.

I. THE VPOP PEER REVIEWERS SPECIFICALLY REJECTED PROPOSALS TO ALLOW LOGGING OF SECOND-GROWTH IN PROTECTED AREAS LIKE RESERVES, BEACH FRINGE, AND RIPARIAN BUFFERS.

With regard to logging in old-growth reserves (described at the time as habitat conservation areas (HCAs)) and travel corridors, Suring et al. opined:⁴⁴⁷

Once HCAs and travel corridors have been identified management standards much be implemented to ensure that they retain their habitat values [T]imber harvest (except of limited second growth and salvage) should not be allowed within the HCAs. Silvicultural treatments that have been demonstrated to enhance important habitat attributes may be appropriate within HCAs.

⁴⁴² The DEIS Comment Letter addressed these issues generally on pages 40 to 48, the need to provide an independent assessment of viability on pages 48 to 51, the obligation to consider contemporary science and expert opinion on pages 51 to 53, and then with regard to specific species on pages 53 to 110.

⁴⁴³ 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1501.2, 1502.5.

⁴⁴⁴ 40 C.F.R. § 1502.9(b).

⁴⁴⁵ See *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1168-69 (9th Cir. 2003).

⁴⁴⁶ See *id.* at 1167.

⁴⁴⁷ The DEIS Comment Letter addressed the origins and scientific foundation for the Conservation Strategy at pages 40 to 42 and the importance of buffers, beach fringe, and reserves at pages 45 to 48.

However, such treatments will initially be experimental and should be tested outside of the HCAs.⁴⁴⁸

Suring et al. contemplated logging second-growth only in HCAs that fully meet the habitat composition criteria if new roads are not constructed and existing roads are closed to general public access.”⁴⁴⁹ They went on to explain that the “[a] system of suitable habitat reserves similar to what we have proposed is, we believe, a critical element of any plan to maintain viable, well-distributed populations of wildlife on the Tongass National Forest.”⁴⁵⁰

In 1994, the PNW peer review of this plan conducted by A. Ross Keister and Carol Eckhardt specifically rejected even the limited second-growth logging contemplated by Suring et al. The peer review cautioned:

If the HCA paradigm is used as part of landscape design strategy, it is very important that the rules of use within the HCAs be carefully specified. The [Suring et al.] *Strategy* is not clear on this topic and it could be. In particular, no logging or further road building should be undertaken in HCAs.⁴⁵¹

They offered this recommendation in large part because they concluded that ensuring wildlife viability depended upon understanding the varying ways in which old-growth dependent species use second-growth forest. The peer reviewers explained that:

Some species associated with old-growth will also be able to use second-growth generally, others will need second-growth for dispersal between patches, and some may never enter second-growth. For those species that use second-growth in some way, overall viability may depend on the kind, amount, and spatial distribution of second-growth that exists.⁴⁵²

They explained that the Forest Service needed to “understand the relation of the kinds [of second-growth] to different species viability, and . . . to understand how to manage second-growth to produce the necessary kinds and distribution of second-growth.”⁴⁵³

⁴⁴⁸ 2008 TLMP AR 10_00102.pdf at 10_013016 (p. 30) (L. Suring, *et al.*, A Proposed Strategy for Maintaining Well-Distributed, Viable Populations of Wildlife Associated With Old-Growth Forests in Southeast Alaska (May 1993)).

⁴⁴⁹ *Id.* at 10_013017 (p. 31).

⁴⁵⁰ *Id.* at 10_013027 (p. 41).

⁴⁵¹ 2008 TLMP AR 10_00101 at 16 (A. R. Kiester & C. Eckhardt, Review of the Wildlife Management and Conservation Biology on the Tongass National Forest: A Synthesis with Recommendations (March 1994)).

⁴⁵² *Id.* at 27-28.

⁴⁵³ *Id.* at 28.

A chorus of experts from the peer review expressed repeated concern regarding any second-growth logging in these areas. For example, Dr. Russell Lande stated:

Thinning of second-growth . . . within HCAs and within narrow riparian and seaside buffers should not be allowed. These activities are likely to produce detrimental effects, including compaction and erosion from road building and movement of heavy machinery, destruction of snags and removal of future down woody material that are important to numerous old-growth species.⁴⁵⁴

Similarly, Professor W. Z. Lidicker Jr. explained that “[b]uffer zones along water ways and coasts are clearly important to the success of the plan as well as to the successful conservation of several species.”⁴⁵⁵ He cautioned, however, that the buffer strips and beach fringe “are not enough” because there were HCAs that were not connected by those corridors.⁴⁵⁶ In those cases, second-growth needs to play a specific role, “timber harvest should be organized so that strips of second-growth of various ages can be used by organisms to disperse between HCAs.”⁴⁵⁷ He concluded with a simple, but powerful statement: “The whole concept of HCAs being susceptible to timber harvest violates the basic foundations of any viable meta-community plan.”⁴⁵⁸

Thus, the Forest Service’s management of second-growth habitat, including the amount, type, and distribution, has been an integral part of ensuring wildlife viability from the earliest origins of the Conservation Strategy.

Neither the FEIS nor the Draft ROD address these fundamental questions regarding origins of the conservation strategy in light of the agency’s decision to disregard these concerns and now allow clear-cut logging in these areas. This violates NEPA. It also renders the agency’s decision regarding the 2016 Amended Forest Plan arbitrary under NFMA and the other timber management statutes governing Tongass forest plans.

II. THE FOREST SERVICE IGNORES MORE RECENT SCIENTIFIC OPINION FROM THOSE WHO HELPED DEVELOP THE CONSERVATION STRATEGY.

The FEIS and the Draft ROD also ignore contemporary expert opinion critiquing the Forest Service’s decision to modify the long-standing Conservation Strategy.⁴⁵⁹ As described below,

⁴⁵⁴ *Id.* at 80.

⁴⁵⁵ *Id.* at 87.

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*

⁴⁵⁸ *Id.* at 89.

⁴⁵⁹ *See* DEIS Comment Letter at 40 to 42, 45 to 48, 51 to 53.

however, the agency never grapples with these competing expert opinions or explains why it chose to pursue a different course despite these concerns.

For example, ten scientists with decades of Tongass experience, including those who developed and refined the Conservation Strategy, expressed significant concerns regarding the second-growth changes proposed by the TAC (and ultimately adopted by the Forest Service):

To access more volume, and improve timber sale economics, the advisory committee would have the Forest Service authorize clearcutting in ≤ 10 acre units in ecologically sensitive areas that are currently off limits to logging. These include Old Growth Reserves, Beach Fringe Buffers, and Riparian Management Areas. These are some of the most productive lands on the Tongass NF, and include reserves that were part of the wildlife conservation strategy in the 1997 Land and Resource Management Plan (carried forward in the 2008 TLMP amendment). Allowing commercial logging in these sensitive areas risks the integrity of that strategy.⁴⁶⁰

These scientists raised specific concerns regarding the lack of scientific understanding underlying these proposals. They cautioned: —These studies need to be carefully designed and conducted before committing to management actions that have centuries-long implications for wildlife.”⁴⁶¹ They concluded that “[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.”⁴⁶² They recommended that logging in —these ecologically important areas [should] be deferred . . . until that science changes.”⁴⁶³

John Schoen, Ph.D., a wildlife ecologist who participated in the —scientific, management and policy arenas on the Tongass . . . for nearly four decades,”⁴⁶⁴ also independently criticized the Forest Service’s decision:

The new Plan Amendment modifies the conservation strategy in that it allows the harvest of mature young-growth stands that occur within some OGRs, beach fringe and riparian management areas. This modification will significantly reduce the effectiveness of the TLMP Conservation Strategy. The young-growth stands that will

⁴⁶⁰ Alaback et al., Scientist Letter to Jason Anderson (2015).pdf at 1 (P. Alaback, et al., letter to J. Anderson (May 12, 2015)).

⁴⁶¹ *Id.* at 2.

⁴⁶² *Id.*

⁴⁶³ *Id.*

⁴⁶⁴ Schoen, John, Letter to Earl Stewart at 9 (Feb. 20, 2016) (Schoen 2016 Letter) (Public Comment – Schoen_John (Attachment)).

be harvested represent many of the best young growth on the Tongass. These were established because of the important habitat values of beach-estuary fringe and riparian areas, and to eventually provide old-growth conditions in the next several centuries as forest succession advanced to old growth. Harvesting these stands now will result in highgrading the most productive young growth within critical conservation reserves and postpone their natural succession back into old growth.⁴⁶⁵

Elsewhere he characterized the decision to modify the Conservation Strategy as “scientifically indefensible.”⁴⁶⁶

Lowell Suring, Paul Alaback, and Matthew Kirchhoff joined others in expressing concern regarding the sweeping changes:

Acre for acre, beach fringe and riparian are two of the most important habitats for sustaining wildlife populations on the Tongass, and are also hot spots for biodiversity. Many of the existing old growth reserves do not have the recommended quantity and quality of old growth to function as designed. We therefore would support restoring old growth condition and function in young growth forests in these areas, with treatments such as thinning and canopy gap creation, but not new clearcut logging and associated roadbuilding which would appear to conflict with the conservation goals for these reserves. Allowing road-building and logging in these areas will risk compromising their basic function as old growth reserves. Depending on the extent of these changes, the cumulative effects could put viable, well-distributed, and harvestable wildlife populations at risk.⁴⁶⁷

They urged the Forest Service to avoid amending the forest plan in ways that made changes to the strategy “without first consulting with an independent panel of forest and wildlife ecologists including some of those who were involved in the development of the original conservation strategy . . . to ensure the recommendations are scientifically grounded.”⁴⁶⁸

Matthew Kirchhoff, “a member of the original Viable Populations committee that designed the Wildlife Conservation Strategy,”⁴⁶⁹ wrote separately to express his concern and frustration

⁴⁶⁵ *Id.* at 8.

⁴⁶⁶ *Id.* at 9.

⁴⁶⁷ P. Alaback, *et al.*, Letter to F. Cole (Dec. 4, 2014) (Public Comment – Knight_Rebecca (Attachment)_44372.pdf).

⁴⁶⁸ *Id.* at 1-2.

⁴⁶⁹ Kirchhoff, TAC Testimony.pdf (1-21-15) (Kirchhoff, M., Email to J. Anderson, *et al.* (Jan. 21, 2015).

regarding the Forest Service's process.⁴⁷⁰ He questioned the decision to allow 10-acre clearcuts in ecologically sensitive areas⁴⁷¹ and, as a result, he advised tak[ing] beach fringe and OGRs off the table, except possibly, in very limited research-oriented applications.⁴⁷² He specifically questioned the scientific foundation for the suggestion that "content" management would allow the agency to simultaneously manage areas in ways that improve habitat and diversity and advance the seral stages to old-growth conditions, while creating commercial timber by-products.⁴⁷³ Ultimately, he explained that in the absence of a date after which old-growth logging would be ceased: "[T]his is not a plan to ramp down old-growth harvest. It is a plan to initiate and ramp up second-growth harvest only."⁴⁷⁴

Despite the overwhelming breadth and depth of these opinions, the FEIS never discloses the broad scope of the opinions of these experts, in violation of NEPA.⁴⁷⁵ Similarly, the Draft ROD never explains why the agency disregarded these opinions.⁴⁷⁶ This renders the agency's decision arbitrary under NFMA and the other timber management statutes that govern Tongass forest plans.

III. THE FOREST SERVICE IGNORES EXPERT OPINION FROM THE U.S. FISH AND WILDLIFE SERVICE.

The U.S. Fish and Wildlife Service raised wide-ranging concerns regarding the Forest Service's approach to the 2016 Amended Forest Plan in its comment letter on the DEIS,⁴⁷⁷ but the FEIS largely ignores all of those concerns.

With regard to riparian areas, the U.S. Fish and Wildlife Service explained that the standards should be relaxed only if reliable scientific evidence clearly demonstrates that the protection is not necessary.⁴⁷⁸ It noted that the Forest Service failed to provide such findings in the DEIS;⁴⁷⁹ despite these concerns, the findings are not presented in the FEIS. The U.S. Fish and Wildlife

⁴⁷⁰ See *id.*; Kirchhoff, M., Comments on Draft Tongass Advisory Committee Recommendations (Apr. 19, 2015) (Kirchhoff TAC Comments).

⁴⁷¹ *Id.* at 2, Comment 5.

⁴⁷² *Id.* at 2, Comment 6.

⁴⁷³ *Id.* at 8 (quoting the Draft Tongass Advisory Committee Recommendations); see also *id.*, Comment 39; *id.* at 9, Comment 45; *id.* at 10, Comment 54 (explaining the 10-acre size is "not linked to any ecological work I am aware of")

⁴⁷⁴ *Id.*, at 4, Comment 15.

⁴⁷⁵ FEIS at App. I, I-42 to I-45; *id.*, App. D, D-20 to D-22.

⁴⁷⁶ See, e.g., Draft ROD at 21-22.

⁴⁷⁷ For obvious reasons, this information was not addressed in the DEIS Comment Letter.

⁴⁷⁸ U.S. Fish and Wildlife Service DEIS Letter at 2.

⁴⁷⁹ *Id.*

Service also noted that the Forest Service provided “little evaluation of the consequences of relaxing the existing standards . . . [and] recommend[ed] the Final EIS include scientific or data-based recommendations supporting proposed management changes and provide a more robust discussion of impacts of proposed changes.”⁴⁸⁰ The FEIS and Draft ROD both ignore these concerns.

With regard to beach fringe, the U.S. Fish and Wildlife Service raised several issues of concern regarding the Forest Service’s approach:

Large forest openings and extensive timber thinning without appropriate slash treatments can interfere with animal movements and increase vulnerability of some species to predation, harvest by humans, and/or exposure to deep snow and severe weather. We recommend that the selected alternative limit young-growth treatments to actions that maintain or improve wildlife habitat in beach and estuary fringe forest. We also recommend openings be limited to two acres or less in order to maintain hunting habitat for goshawks and provide thermal cover for deer. Moreover, we recommend that slash be treated to allow unconstrained movement of deer, bears, wolves, and other species. We also recommend against creating openings in beach fringe where a corridor of mature or old forest less than 660 feet wide would be left, in order to maintain effective thermal cover (Concannon 1995).⁴⁸¹

Again, the FEIS ignores all of these expert concerns and recommendations. At one point, for example, the FEIS states little more than “Young-growth area beach/estuary fringe harvest has the potential to affect the nearshore marine system from the timber removal methods that may be employed.”⁴⁸² Similarly, the Draft ROD fails to explain why the Forest Service ignored those concerns and refused to modify the approach as the expert wildlife agency recommended.⁴⁸³

The U.S. Fish and Wildlife Service raised similar concerns regarding the Forest Service’s decision to clear-cut old-growth reserves: —To achieve maximum conservation benefit, treatments in OGRs should be designed primarily to accelerate development of old-growth

⁴⁸⁰ *Id.*

⁴⁸¹ *Id.* at 2-3.

⁴⁸² FEIS at 3-64 to 3-65.

⁴⁸³ The Draft ROD asserts that implementing the Fish and Wildlife Service’s recommendation is not necessary to “provid[e] habitat and connectivity,” but fails to provide any reason for disagreeing with the expert wildlife agency’s contrary conclusion. Draft ROD at 35. Furthermore, the Draft ROD claims the recommendation was —the young-growth harvest units in the beach and estuary fringe be restricted to no more than 5 acres to maintain or improve wildlife habitat conditions,” which is both numerically incorrect and a gross oversimplification. *See id.*

characteristics without compromising landscape connectivity and animal movement.”⁴⁸⁴ The U.S. Fish and Wildlife Service went on to explain, “[w]e strongly recommend against creating large clearcut openings in OGRs, given the importance of this productive old-growth forest for a variety of species.”⁴⁸⁵

In the end, the U.S. Fish and Wildlife Service concluded that the changes in the 2016 Amended Forest Plan “seriously compromise[s] the integrity of the conservation strategy.”⁴⁸⁶ Neither the FEIS nor the Draft ROD, however, acknowledge or resolve this expert criticism. For this reason, the agency’s decision is arbitrary under NFMA and the other statutes governing forest plans on the Tongass and the FEIS violates NEPA.

IV. THE FOREST SERVICE IGNORES EXPERT OPINION FROM THE PACIFIC NORTHWEST RESEARCH STATION REGARDING IMPACTS ON RIPARIAN AREAS.

The Forest Service solicited input from PNW regarding the agency’s proposals for second-growth management in riparian areas.⁴⁸⁷ During that review Dave D’Amore, a research soil scientist with the Pacific Northwest Research Station, specifically criticized the Forest Service’s plan to allow 10-acre second-growth clearcuts in riparian areas:

Dave reiterated that if the objective is to achieve late seral forest conditions of large, widely spaced conifer trees to create complexities in the riparian zone, the proposed actions in Alternatives 2 and 5 would set back the trajectory; moving away from the desired condition. We would enter into a new disturbance regime, and although you wouldn’t be doing this to the entire stand, you are still moving it on a new trajectory. The emerging science, in terms of what other processes are going to be introduced that might introduce complexity, we just don’t know. There might be something, but then that trajectory may be disadvantageous or advantageous and there is much uncertainty there.

There is evidence in some of Dave’s research that some of the stands, where they look like they have dense conifer, you could do commercial thinning potentially. However, 33 percent of the basal area removal (Alt. 2) or a 10 acre opening (Alt. 5) would take a large portion of the stand. In Dave’s opinion this would be larger

⁴⁸⁴ U.S. Fish and Wildlife Service DEIS Letter at 3.

⁴⁸⁵ *Id.*

⁴⁸⁶ U.S. Fish and Wildlife Service DEIS Letter at 3.

⁴⁸⁷ PR 769_05_000176 at 1-2 (Forest Service, Final Notes, Science Consultation on Tongass Forest Plan Amendment Young-growth Management in Riparian Teleconference (July 30, 2015) (USFS Final Notes)).

than what would be able to maintain the desired future condition. While it's still possible to do an entry and keep the stand on its trajectory to the desired future condition, that would have to be a much smaller footprint than the proposed alternatives. . . .

Dave summarized by stating that the desired condition is to put these areas on a trajectory toward late seral forest conditions and the complexity associated with that. An action in these areas would likely divert/delay that, but under certain circumstances there is a potential to stay on that trajectory with a smaller-type entry or action, but certainly not something that resembles large openings with no trees in them. This type of action would set the area back to 'type zero' in terms of the trajectory toward the desired future condition.⁴⁸⁸

Notably, the notes make clear that Dave stated that he could have gone deeper, but not under the time constraint from the Forest.⁴⁸⁹ The Forest Service gave him about a week to complete⁴⁹⁰ a low-level review.⁴⁹¹

The FEIS and Draft ROD both fail to even acknowledge these expert concerns.⁴⁹² The fact is the Forest Service makes a fundamental switch from the management of riparian areas under the 2008 Amended Forest Plan to the 2016 Amended Forest Plan. As Dennis Landwehr, Forest Service soils scientist explained: "[The 2008 Amended] Forest Plan standards are to maintain the old growth scenario in our RMAs, and in young growth it is to restore the old-growth characteristics."⁴⁹³

During this discussion, Sheila Jacobson, a Forest Service fish biologist, highlighted the fallacy of simultaneously managing the same riparian areas for commercial timber production and ecological purposes:

I believe the TAC's recommendations are somewhat contradictory where they state in their recommendations that, . . . the TAC recommends co-intent management activities that advance the seral stages toward Tongass old growth conditions, while creating commercial timber by-products.⁴⁹⁴

⁴⁸⁸ *Id.* at 9; *see also id.* at 11.

⁴⁸⁹ *Id.* at 10.

⁴⁹⁰ *Id.* at 2.

⁴⁹¹ *Id.*

⁴⁹² *See, e.g.,* FEIS at 3-65 to 3-82; *id.* at App. D, D-17 to D-19.

⁴⁹³ USFS Final Notes at 6.

⁴⁹⁴ *Id.* at 9 (quoting the TAC recommendations).

Despite these concerns, the Forest Service makes no effort in the FEIS or the Draft ROD to defend its decision to allow 10-acre clear-cuts in these areas. This violates NEPA and renders the decision regarding the 2016 Amended Forest Plan arbitrary under NFMA and the other timber statutes governing Tongass forest plans.

IGNORING CONTEMPORARY SCIENCE

I. THE FOREST SERVICE IGNORES REQUESTS TO CONSIDER NEW SCIENTIFIC INFORMATION REGARDING THE INTEGRITY OF THE CONSERVATION STRATEGY, DESPITE REPEATED RECOMMENDATIONS FROM EXPERTS.

In 2008, the last time the Forest Service amended the forest plan, the agency employed a wide variety of means (Conservation Strategy Review, expert opinions, literature review, etc.)⁴⁹⁵ to address important questions regarding the efficacy of the conservation strategy in light of new information that had developed since 1997, as well as new scientific information regarding the needs of specific wildlife species. The agency relied on the expertise of dozens of scientists, experts across diverse fields of study, as well as public processes aimed at ensuring the 2008 Amended Forest Plan was founded on the best available science.

The Forest Service inexplicably refuses to conduct that same robust scientific inquiry with regard to the 2016 Amended Forest Plan, opting instead for opinions of three people and the combined analysis of less than 14 pages.⁴⁹⁶ As a general matter, the agency takes the position that it concluded species would remain viable in 2008 and it is under no obligation to revisit those determinations with regard to 2016 plan amendment. The agency's position violates NFMA's diversity obligations, including the agency's duty to ensure wildlife viability. It is also arbitrary given the Forest Service received numerous comments from experts and the public alike questioning the agency's decision to disregard contemporary science, including science aimed at the efficacy of the Conservation Strategy. And because this information is presented in an FEIS, the Forest Service violates NEPA. Simply put, the agency cannot refuse to examine science that questions whether the Forest Service is maintaining the proper amount, type, and distribution of habitat on the Tongass to maintain viable, well-distributed wildlife populations.

⁴⁹⁵ See, e.g., PR 769_05_000836 (Tongass National Forest Land and Resource Management Plan, Workshop Summary Report, Intragency Conservation Strategy Review: An Assessment of New Information Since 1997 (January 2008); 2008 TLMP AR 603_0981 (DeGayner, G. & C. Iverson, Conservation Strategy Review: An Assessment of New Information Since 1997, Conservation Strategy Overview – “Setting the Stage”).

⁴⁹⁶ See PR 769_05_000838 (Roloff, Dr. G. J., Michigan State University, Letter to Dr. G. Hayward, U.S. Forest Service (June 23, 2015) (Roloff Letter)); PR 769_05_000839 (Suring, L. H., Letter to G. Hayward, U.S. Forest Service (June 23, 2015) (Suring 2015 Letter)); PR 769_05_000840 (Schmiegelow, F., Professional Review of the Proposed Draft: Evaluating Integrity of the Tongass Old-Growth Habitat Conservation Strategy) (Schmiegelow 2015 Review)).

A. Outside Experts Specifically Questioned the Forest Service’s Refusal to Examine Contemporary Science.

The U.S. Fish and Wildlife Service expressed concerns regarding the Forest Service’s refusal to consider contemporary science. It, for example, specifically cautioned:

We also recommend that specific elements of the conservation strategy be updated with the best available scientific data and strengthened by incorporating experience from the last 20 years of management, specifically where available information suggests the current conservation strategy is not adequate to sustain vulnerable species.⁴⁹⁷

Winston Smith, Ph.D., who was a member of the PNW Research Station scientific review team in 1997,⁴⁹⁸ also questioned the Forest Service’s failure to rely on contemporary scientific information. He explained that contemporary publications “report deficiencies and uncertainties in the ability of the Tongass Wildlife Conservation Strategy to function as intended” with regard to the northern goshawk (Smith 2013) and the northern flying squirrel (Smith et al. 2011).⁴⁹⁹ Dr. Smith explains:

Given that key assumptions of TLMP-WCS for northern goshawks (Smith 2013) and northern flying squirrels (Smith and Person 2007, Smith et al. 2011) are not supported by the best available science and the original assessment of risk to wildlife viability is a gross underestimate of the risk of extinction of any wildlife species across the planning area, it follows logically (and is supported by published empirical evidence in the scientific literature) that all modifications to the TLMP-WCS that do not demonstrably increase habitat, improve functional connectivity, or reduce fragmentation or landscape resistance to movement will almost certainly substantially increase the risk to wildlife viability across planning area. Therefore, it follows that any forest plan amendment or revision that proposes to continue harvesting old-growth or impose clearcut logging within any of the conservation elements, such as second-growth stands in buffers, will require a comprehensive analysis of the 1997 TLMP Wildlife Conservation Strategy.⁵⁰⁰

Thus the assertions in the DEIS, and by extension the FEIS, that the 2016 Amended Forest Plan continues to provide sufficient habitat for important ecological functions such as dispersal ~~are~~

⁴⁹⁷ U.S. Fish and Wildlife Letter at 2.

⁴⁹⁸ Smith Conservation Strategy Comments.

⁴⁹⁹ *Id.* at 2.

⁵⁰⁰ *Id.* at 5.

without merit because of the absence of supportive evidence for most wildlife species and because it is unsupported by the published credible science on endemic small mammals (i.e., northern flying squirrels; Smith et al. 2011).”⁵⁰¹

B. The Forest Service’s Own Experts Questioned the Agency’s Approach to the Conservation Strategy Review and the Lack of Contemporary Science.

In lieu of the robust scientific examination it employed in 2008, the Forest Service sought the opinions of just three people to evaluate the integrity of the conservation strategy in 2016. In a draft, undated document entitled “Evaluating Integrity of the Tongass National Forest Old-growth Habitat Conservation Strategy,” the Forest Service explained that it planned to ask three biologists/ecologists to develop statements regarding whether the conservation strategy as implemented under the 2016 Amended Forest Plan “meets or exceeds the integrity of the fully implemented 1997 plan.”⁵⁰² Based on a review of the record, the agency apparently never finalized this document. But it is clear the agency provided those experts very little time or information to support their review.

For example, one expert, Dr. Gary Roloff questioned: “It is not clear if the unharvested old-growth from the 1997 Plan is still scheduled for harvest, or if those areas are being replaced by second growth forest in the plan amendment.”⁵⁰³ The fact the agency’s own expert was forced to ask such a fundamental question leads one to question whether the agency accurately explained the proposed plan amendment. The answer, of course, is that the 2016 Amended Forest Plan is less about getting out of old-growth logging than it is about opening up opportunities for logging the best second-growth on the Tongass, but the agency acknowledges that the transition out of old-growth might never happen.

Dr. Roloff went on to question the agency’s entire approach to evaluating the ongoing integrity of the conservation strategy. He explained:

My most critical comment on the Evaluation Strategy relates to the proposed process for determining whether the integrity of the 1997 plan is compromised. Although the Northwest Forest Plan successfully used the Delphi method 20+ years ago, I think we can do better. If I read the Evaluation Strategy correctly, the Delphi approach will be conducted by 3 biologists/ecologists (middle of page 9). Subsequently, the opinions of the 3 biologists/ecologists will be “bootstrapped” to add credibility intervals. In my opinion, bootstrapping qualitative opinions on plan performance from only 3 biologists/ecologists adds a false sense of statistical rigor to the outcome. I would rather see us measure progress towards the

⁵⁰¹ *Id.* at 3.

⁵⁰² PR 769_05_000837 at 9 (Hayward, G. *et al.*, Draft – Evaluating Integrity of the Tongass National Forest Old-growth Habitat Conservation Strategy (undated)).

⁵⁰³ Roloff Letter at 1.

specific targets in the Key Elements, link those back to clearly articulated objectives for the old-growth strategy, and then have the biologists/ecologists agree on a set of quantitative metrics that they agree represents the integrity of the original old growth plan (probably linked directly to the Key Elements). . . . I hate to be so hard on the proposed approach, but . . . [b]ottom line, I think the Tongass needs to be more thoughtful on the evaluation process, relying on quantifiable metrics that can withstand analytical scrutiny.⁵⁰⁴

Lowell Suring similarly challenged the Forest Service's three-opinion qualitative survey approach to evaluating the integrity of the conservation strategy. He recommended the agency produce metrics . . . that provide measurements suitable for describing the landscape resulting from the current application of the Conservation Strategy."⁵⁰⁵ He continued: "Thresholds for these metrics should be established so that when the resulting landscape resulting from the Plan amendment is similarly described it will be apparent when current values are exceeded or are not met."⁵⁰⁶ He advised the Forest Service that "unacceptable amounts of variance in the comparison for each element [in the 1997 Conservation Strategy] should be established," as a means of providing "an objective appraisal of integrity that would be difficult to question."⁵⁰⁷

The experts also advised the Forest Service that it failed to account for new scientific information in assessing the continued integrity of the conservation strategy. Lowell Suring cautioned that:

[D]uring the last 2 decades other critical work in landscape ecology has been completed and published that would be value in this review (e.g., Schumaker et al[.] 2014, Theau et al. 2015). Additionally, since the Strategy was developed, substantial additional work has been completed and published on the landscape use patterns of the focal species included in the strategy (e.g., Smith and Person 2007, Flynn et al. 2012, Smith 2013, Pauli et al. 2015).⁵⁰⁸

Fiona Schmiegelow similarly recommended that the Forest Service needed to make this evaluation in light of contemporary scientific information, rather than the science that existed in 1997 or 2008:

⁵⁰⁴ *Id.* at 2.

⁵⁰⁵ Suring 2015 Letter at 1-2.

⁵⁰⁶ *Id.* at 2.

⁵⁰⁷ *Id.* at 5 (emphasis added).

⁵⁰⁸ *Id.* at 2.

It would be prudent, however, to evaluate whether new knowledge is available to assess the efficacy of the original design criteria vis a vis species, and for use as a fine-filter when considering the proposed amendments [to] the broader forest plan. As a fundamental principle, the evaluation should not be constrained by the parameters of the 1997 plan as a basis for comparison if more recent information suggests that other considerations are necessary to meet species needs.

.....

To address new knowledge of species needs, a compilation of local knowledge and recent studies, as well a broader review of relevant knowledge generated for species of interest, regardless of regional specificity (i.e., a review that includes primary and grey literature on focal species) should be conducted. . . . This knowledge could be used as recommended elsewhere, for the evaluation and enhancement of strategies.⁵⁰⁹

Even the Forest Service's own experts questioned the agency's fundamental approach to the 2016 Amended Forest Plan. Yet neither the FEIS nor the Draft ROD discloses these concerns or justifies the agency's decisions to continue without accounting for the changes in scientific understandings since 2008. Appendix D in the FEIS, for example, which purports to address the Forest Service's conclusions regarding the conservation strategy and the agency's approach to wildlife impacts and the conservation strategy generally, ignores these concerns altogether.⁵¹⁰ The agency's failure to disclose these concerns in the FEIS violates NEPA and the agency's failure to justify its decision in light of these conflicting expert opinions renders the decision arbitrary under NFMA and the other statutes governing Tongass forest plans.

C. The Forest Service Erroneously Defends Its Decision to Disregard Contemporary Science Regarding the Impacts of the 2016 Amended Forest Plan.

The Forest Service acknowledged in the DEIS that contemporary science demonstrated that the agency needed to assess whether the conservation strategy was still working as originally intended or whether new scientific information warranted changes.⁵¹¹ In the DEIS the agency acknowledged the contemporary science, but claimed that addressing it was beyond the scope of the amendment effort:

⁵⁰⁹ Schmiegelow 2015 Review at PDF 3-4.

⁵¹⁰ FEIS, App. D at D-20 to D-22.

⁵¹¹ See DEIS Comment Letter at 51 to 53.

Finally, the development of the original conservations strategy in 1997 was based in part on the needs of a select group of old-growth associated species (see Appendix N of the 1997 Forest Plan FEIS for a discussion of the selection of design species) Since 2008, there have been research publications that address some of these species including goshawks (Smith 2013), wolves (Person and Russell 2008, 2009; Weckworth et al. 2010, 2011; ADF&G 2012; Person and Logan 2012), brown bears (Flynn et al. 2009), marten (Flynn and Schumacher 2009, Pauli et al. 2015), deer (White et al. 2009) and flying squirrels (Flaherty et al.2008, 2010; Pyare et al. 2010; Smith et al. 2011) that *may warrant an assessment of the efficacy of the original conservation strategy design criteria*. This type of assessment is outside of the scope of the proposed Forest Plan amendment, and would be more appropriately conducted in the context of a Forest Plan revision.⁵¹²

In response to concerns regarding this position,⁵¹³ the FEIS retracts the statement. The FEIS states the new scientific publications:

[P]rovide additional considerations regarding their conservation needs. Information from these studies, other relevant studies and other best available science would be used to review the conservation strategy design if, in the future, data from various sources suggest that the conservation strategy is no longer functioning as originally intended. However the results of the analysis in this appendix indicate the conservation strategy currently functions as intended and is expected to function regardless of which alternative is selected.⁵¹⁴

The Forest Service cannot ignore contemporary scientific information. As explained above, to do so renders the agency’s decision-making arbitrary under NFMA and the other statutes governing Tongass forest plans. The agency also violates NEPA, because the FEIS fails to disclose and address conflicting expert opinion and contains misleading and incomplete information regarding the efficacy of the conservation strategy generally and the impacts on wildlife species.

⁵¹² DEIS, App. D at D-4.

⁵¹³ The DEIS Comment Letter addressed these issues on pages 51 to 52.

⁵¹⁴ FEIS , App. D at D-5.

II. THE FEIS FAILS TO ADDRESS MISSING INFORMATION ON WILDLIFE

“The very purpose of NEPA’s requirement that an EIS be prepared for all actions that may significantly affect the environment is to obviate the need for . . . speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action.”⁵¹⁵ Thus, an agency’s starting point for any NEPA analysis is to collect and describe baseline data about the environment in which the activity is to occur, because, “[w]ithout establishing the baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA.”⁵¹⁶

When an agency confronts incomplete or unavailable information as part of the environmental review process, NEPA regulations dictate how the agency must address that information.⁵¹⁷ “[T]he agency shall include the information in the environmental impact statement,” if the missing information is: (1) “relevant to reasonably foreseeable significant adverse impacts;” (2) “essential to a reasoned choice among alternatives;” and (3) “the overall costs of obtaining it are not exorbitant.”⁵¹⁸ CEQ has explained that “[t]he evaluation of impacts under § 1502.22 is an integral part of an EIS and should be treated in the same manner as those impacts normally analyzed in an EIS.”⁵¹⁹

The Forest Service attempts to comply with NEPA’s requirements by making the blanket statement that “[t]he 1997 Tongass Forest Plan Revision FEIS, the 2003 SEIS, the 2008 Forest Plan Amendment EIS, and this EIS, along with their planning records, will provide the Forest Supervisor with the essential information needed to make a reasoned choice among alternatives.”⁵²⁰ This conclusory statement falls far short of the missing information analysis required by NEPA. The Forest Service must acknowledge and grapple with specific areas where information is missing. The following examples highlight places in the FEIS where the Forest Service has acknowledged that information is missing but has failed to analyze whether such information is relevant to adverse impacts, whether it is essential to a reasoned choice among the alternatives, and whether the costs of obtaining it are exorbitant.

⁵¹⁵ *Found. for N. Am. Wild Sheep v. U.S. Dep’t of Agric.*, 681 F.2d 1172, 1179 (9th Cir. 1982).

⁵¹⁶ *Half Moon Bay Fishermans’ Mktg. Ass’n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988).

⁵¹⁷ *See Mont. Wilderness*, 666 F.3d at 559-61.

⁵¹⁸ 40 C.F.R § 1502.22(a).

⁵¹⁹ 51 Fed. Reg. at 15,621; *see also Native Vill. of Point Hope v. Jewell*, 740 F.3d 489, 496-97 (9th Cir. 2014) (explaining the agency must conduct the analysis required by § 1502.22); *Mont. Wilderness*, 666 F.3d at 554; *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm’n*, 449 F.3d 1016, 1033 (9th Cir. 2006); *Lands Council v. Powell*, 395 F.3d 1019, 1031-32 (9th Cir. 2004).

⁵²⁰ FEIS at 3-3.

- Goshawk: –The system of OGRs and other non-development LUDs also maintains habitat for this species, although a recent study suggests that some uncertainty remains with respect to the ability of Forest Plan conservation measures to contribute sufficient habitat to sustain well-distributed, viable populations of northern goshawks throughout Southeast Alaska (Smith 2013). Continued inventories and monitoring of established nest protection buffers will help to inform future decisions.”⁵²¹
- Marten: –Although only one species of marten is formally recognized in Southeast Alaska two distinct lineages exist. Although there is some uncertainty, recent taxonomic evidence suggests the potential existence of two species (Dawson and Cook 2012).”⁵²²
- Endemism: –There remain many uncertainties about the extent of endemism in Southeast Alaska because research to date has primarily focused on mammals, thus the level of endemism in other organisms such as plants, birds, amphibians, and invertebrates is largely unknown.”⁵²³
- Bats: –Little is known about the distribution, migration, habitat associations, and population status of [bats]”,⁵²⁴ and –further research is needed to better understand current bat populations and how they respond to habitat loss and other factors.”⁵²⁵
- Birds: –Fragmentation may increase the exposure of birds to edge-related predators and parasites, though there remain many unknowns about the effects of fragmentation on landbird populations in Alaska.”⁵²⁶
- Plants: –Due to the limited scope of surveys conducted within the Tongass, exact distributions of plants and their habitat are unknown.”⁵²⁷ Further, –[t]here has been little research into the effects of changes in environmental conditions for each of the sensitive and rare species; consequently, there is uncertainty as to the effect of changes in the climate on sensitive and rare plant species known or suspected to occur on the Tongass.”⁵²⁸

⁵²¹ *Id.* at 3-227.

⁵²² *Id.* at 3-235.

⁵²³ *Id.* at 3-247.

⁵²⁴ *Id.* at 3-245.

⁵²⁵ *Id.* at 3-246 (citation omitted).

⁵²⁶ *Id.* at 3-243 (citations omitted).

⁵²⁷ *Id.* at 3-156.

⁵²⁸ *Id.* at 3-171 to 3-172.

- Lesser round-leaved orchid: –Additionally, factors related to a potential downward trend are uncertain and may include a number of variables, such as this species’ inherent periodic dormancy, requirement for specific mycorrhizal symbiont, and herbivory, in addition to management actions such as timber harvest and road construction.”⁵²⁹

The FEIS runs afoul of NEPA because it does not perform the missing information analysis required by 40 C.F.R. §1502.22.

WILDLIFE IMPACTS

I. WOLVES

In the DEIS Comment Letter at pages 53 to 58, commenters explained that the 2016 Amended Forest Plan violates NFMA because it fails to comply with the diversity obligations and ensure the continued presence of a well-distributed, viable population of wolves in the Tongass. The FEIS, moreover, violates NEPA because it fails to take a hard look at the effects of the 2016 Amended Forest Plan on wolves, fails to respond to opposing viewpoints, and fails to identify missing information necessary to a reasoned choice among alternatives.

A. The 2016 Amended Forest Plan Fails to Confront Serious Viability Concerns for Alexander Archipelago Wolves.

The 2016 Amended Forest Plan directly violates, and the agency reached arbitrary conclusions regarding, NFMA’s diversity requirements and the agency’s substantive obligation to adopt a forest plan that ensures the wolf remains viable in the Tongass.⁵³⁰ The 2008 Amended Forest Plan’s critical mechanism for meeting this requirement 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.”⁵³¹ The 2016 Amended Forest Plan perpetuates this failing.⁵³² This is critical because the best available science shows that there are serious viability concerns for Alexander Archipelago wolves that will only be exacerbated by concentrated old-growth logging in key habitats and by the weakening of the conservation strategy, as provided for by the 2016 Amended Forest Plan. The 2016 Amended Forest therefore violates NFMA.

Pursuant to NFMA regulations, –wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.”⁵³³ “[T]o insure that viable populations will be maintained,” a forest plan must manage habitat in such a way as

⁵²⁹ *Id.* at 3-165.

⁵³⁰ 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19 (2000).

⁵³¹ 36 C.F.R. § 219.19 (2000).

⁵³² *See* 2016 Amended Forest Plan at 4-91.

⁵³³ 36 C.F.R. § 219.19 (2000); *see also* 16 U.S.C. § 1604(g)(3)(B); 2016 Amended Forest Plan at 4-85.

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.”⁵³⁴ As described above, both the 2016 Amended Forest Plan and the 2008 Amended Forest Plan explicitly incorporate these obligations.⁵³⁵ However, like the 2008 Amended Forest Plan, the 2016 Amended Forest Plan does not meet the 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. The Forest Service concluded that it was not scientifically defensible to identify what minimum wolf population would ensure the wolf’s viability. 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 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.⁵³⁶ In adopting the 2008 Amended Forest Plan’s discretionary framework, the 2016 Amended Forest Plan perpetuates the same legal infirmities addressed in *In Re: Big Thorne Project and 2008 Tongass Forest Plan*, No. 15-35244 (9th Circuit).

The 2016 Amended Forest Plan, moreover decreases deer habitat capability by 14 percent.⁵³⁷ This is a significant decrease in habitat capability that will have serious consequences for a population of wolves that is already in decline. Wolves on the Tongass, especially on Prince of Wales Island, are facing serious viability concerns. In the mid-1990s the wolves on Prince of Wales Island and the smaller surrounding islands alone likely represented almost 40 percent of all of the wolves in Southeast Alaska.⁵³⁸ But according to the Forest Service, there has been a [d]ramatic decline of wolf population on Prince of Wales Island.”⁵³⁹ The State of Alaska’s 2014 estimate for a study area within Game Management Unit 2 is 9.9 wolves per 1000 square

⁵³⁴ 36 C.F.R. § 219.19 (2000).

⁵³⁵ See *supra* pp. 74-75.

⁵³⁶ 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*, Nos. 15-35232, 15-35233, and 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 objection in their entirety.

⁵³⁷ FEIS at 3-274.

⁵³⁸ PR 769_05_000523 at 12 (D. Person *et al.*, *The Alexander Archipelago Wolf: A Conservation Assessment*, U.S. Forest Service at 12 (Nov. 1996)) (Wolf Conservation Assessment).

⁵³⁹ U.S. Forest Service Briefing Paper: Dramatic Decline of Wolf Population on Prince of Wales Island, Tongass National Forest at 1 (May 29, 2015).

kilometers, which Alaska Fish and Games admits is ~~–~~significantly lower than the autumn 2013 estimate of 24.5 wolves/1000 km².⁵⁴⁰ Thus, the most recent estimate by the State of Alaska for Game Management Unit 2 is only 9.9 wolves per 386 square miles or 0.026 wolves per square mile.

These troubling findings bolster the concerns Dr. David Person expressed when he participated in the Big Thorne environmental review.⁵⁴¹ He cautioned that wolves are ~~–~~already facing the possibility of extinction on Prince of Wales Island.⁵⁴² He noted that Big Thorne logging ~~–~~will remove the most important remaining deer winter habitat . . . [and] [a]s a result, the predator-prey relationship between wolves and deer on Prince of Wales is likely to collapse.⁵⁴³ He further opined that the ~~–~~combined effects of Big Thorne and the other logging on wolves within the Prince of Wales Archipelago likely will be the collapse of a sustainable and resilient predator-prey ecological community.⁵⁴⁴

Because of these concerns, the U.S. Fish and Wildlife Service recently conducted a Status Review of Alexander Archipelago wolves in response to a petition to list the species under the Endangered Species Act (ESA).⁵⁴⁵ Although the U.S. Fish and Wildlife Service ultimately concluded that ESA listing was not warranted (given the overall geographic range of the wolf), it acknowledged that there was reasonable risk that wolves could be significantly reduced, or perhaps even extirpated, from Prince of Wales Island and the smaller surrounding islands as a result of declining prey abundance and increasing density of roads and subsequent human-induced mortality risk to wolves.⁵⁴⁶

The possible extirpation of wolves from Prince of Wales Island presents a viability concern, as the Forest Service acknowledged in the 2008 FEIS:

⁵⁴⁰ State of Alaska, Department of Fish and Game Division of Wildlife Conservation, Gretchen Roffler Memorandum to Ryan Scott at PDF 1 (June 16, 2015); *see also* G. Roffler *et al.*, *Wolf Population Estimation on Prince of Wales Island, Southeast Alaska: A Comparison of Methods*. (2016).

⁵⁴¹ *See generally* Statement of David K. Person Regarding the Big Thorne Project, Prince of Wales Island (Aug. 15, 2013) (Person Statement); David K. Person Comments Regarding the Draft Supplemental Information Report for the Big Thorne Project (June 23, 2014).

⁵⁴² Person Statement at 15.

⁵⁴³ *Id.*; *see also* Audubon Alaska, Correction to Big Thorne SIR Comments, Updated USFS Deer Habitat Capability Map (Aug. 7, 2014).

⁵⁴⁴ Person Statement at 5.

⁵⁴⁵ 81 Fed. Reg. 435 (Jan. 6, 2016).

⁵⁴⁶ *Id.* at 440-41, 444-45, 452, 455-56, 458.

Recent research (*Alexander Archipelago Wolf*, presented at the Tongass Conservation Strategy Review Workshop 2006) has shown that the population on [Prince of Wales] Island is genetically isolated from other Tongass populations, *which presents profound implications for maintaining well-distributed wolf populations* in light of local declines, given that these populations are are [*sic*] more sensitive to human activity and habitat disturbance than wolf populations elsewhere in the state (Schoen and Person 2007).⁵⁴⁷

But the Forest Service has now apparently concluded that the U.S. Fish and Wildlife Service's decision not to list Alexander Archipelago wolves means that there are no viability concerns for the wolves:

The USFWS Alexander Archipelago wolf species status assessment concluded that assuming continuation of current land use trends, the GMU 2 wolf population is anticipated to decline by another roughly 8 to 14 percent of current levels over the next 30 years (USFWS 2015). Although this could result in gaps in wolf distribution within GMU 2, given that it comprises just 6 percent of the population range wide, impacts to the overall distribution in Southeast Alaska or to species viability are not expected (USFWS 2015).⁵⁴⁸

The U.S. Fish and Wildlife Service, however, very clearly stated in its comment letter on the DEIS that the loss of wolves on Prince of Wales Island would violate NFMA's viability requirement:

Under the Forest Service's 1982 planning rule (47 FR 43037, Sept. 30, 1982), which continues to apply to most of the wildlife standards and guidelines in the proposed Forest Plan, *the Tongass must be managed to provide for viable, well-distributed populations of native wildlife. We believe that this includes maintaining the wolf population on Prince of Wales Island.* Implementation of existing standards and guidelines intended to protect wolves from unsustainable harvest and habitat loss appears

⁵⁴⁷ 2008 FEIS at 3-281 (emphasis added); *see also* 2008 TLMP AR 603_0879 (B.V. Weckworth *et al.*, *A Signal for Independent Coastal and Continental histories among North American wolves*, MOLECULAR ECOLOGY 14: 917-931 (2005)); PR 769_05_000489 (B.V. Weckworth *et al.*, *Phylogeography of wolves (Canis lupus) in the Pacific Northwest*, JOURNAL OF MAMMALOGY, 91(2):363-375 (2010)); B.V. Weckworth *et al.*, *Genetic distinctiveness of Alexander Archipelago wolves (Canis lupus ligoni): Reply to Cronin et al. (2015)*, JOURNAL OF HEREDITY 1-3 (2015); E. A. Lacey, Ph.D., President, American Society of Mammalogists, Letter to Dr. Kimberley Titus, Alaska Department of Fish and Game (Nov. 1, 2015).

⁵⁴⁸ FEIS at 3-287.

to be inadequate for the wolves on Prince of Wales, given the population's documented decline.⁵⁴⁹

To be viable, wolves must be “well-distributed” throughout the Tongass. Although the Prince of Wales population may only represent six percent of the total wolf population after decades of decline, it was once more than a third of the Alexander Archipelago wolf population. Wolves on the Tongass are not well-distributed and are therefore not viable if they are absent from this important part of their range. In failing to ensure the viability of wolves on the Tongass, the 2016 Amended Forest Plan violates NFMA.⁵⁵⁰

B. The FEIS Does Not Take a Hard Look at the Effects of the Action, Nor Does It Respond to Responsible Opposing Views or Identify, Disclose, and Attempt to Attain Necessary Missing Information.

The FEIS does not take a hard look at the effects of the 2016 Amended Forest Plan, as NEPA requires. It does not grapple with threats to wolf viability, nor does it respond to significant opposing views. The FEIS also fails to identify missing information that may be necessary to a reasoned choice among alternatives.

In the DEIS Comment Letter, commenters explained why the 2016 Amended Forest Plan will not ensure the viability of wolves.⁵⁵¹ Moreover, both agencies with management authority over wolves suggested that the Forest Service's plan would not ensure wolf viability. The State of Alaska commented that:

[It] supports additional research and analyses concerning the effect of the Proposed Plan on Alexander Archipelago wolves. The State has primary trust authority for managing wolves and the [U.S. Forest Service] has land management authorities to provide habitat and access management for wolves in cooperation with the state. Conservation of wolves in this area warrants additional consideration in the Forest Plan.”⁵⁵²

⁵⁴⁹ U.S. Fish and Wildlife Service DEIS Letter at 4 (emphasis added).

⁵⁵⁰ To the extent that the agency's suggestion that the 2016 Amended Forest Plan “meet[s] the intent, if not the letter” of the diversity provisions of 36 C.F.R. § 219.9, FEIS, App. I at I-30, applies to its assessment of wolves, it is insufficient. Even assuming it were the governing provision, neither the FEIS nor the Draft ROD offer any analysis of the 2016 Amended Forest Plan's compliance with those requirements and for reasons similar to its failure to meet the 1982 regulation's requirements, the 2016 Amended Forest Plan would also violate the 2012 regulation, were it to apply.

⁵⁵¹ See DEIS Comment Letter at 53-58.

⁵⁵² Public Comment, Bluemink Elizabeth (Attachment)_103771, at p. 8 (State of Alaska, Tongass Land and Resource Management Plan Amendment Draft Environmental Impact Statement (DEIS) Agency Comments (Feb. 22, 2016)).

And as noted above, the U.S. Fish and Wildlife Service stated that it had viability concerns for wolves, especially on Prince of Wales Island. Notwithstanding these critiques, in the FEIS the Forest Service again glossed over threats to the wolves and failed to disclose that the State of Alaska and the U.S. Fish and Wildlife Service had criticized the 2016 amendment. In so doing the Forest Service failed to take a hard look at the effects of its actions and failed to respond to reasonable opposing views.

Commenters and the U.S. Fish and Wildlife Service also pointed out to the Forest Service that the amendment process provided the agency an opportunity to strengthen the forest plan's wolf provisions.⁵⁵³ The Forest Service's only response to this comment was to avoid it: "Strengthening the plan provisions governing wolves is outside of the scope of this narrow amendment."⁵⁵⁴ As explained above, the agency has a mandatory obligation to adopt a forest plan that maintains sufficient habitat to ensure wolves remain viable and well-distributed across the Tongass. The agency is making a decision about how much more old-growth logging of wolf habitat can take place, which very likely requires additional or different plan level protections for the wolves. NFMA does not allow the agency to ignore that obligation. The Forest Service acts contrary to NFMA and reaches an arbitrary decision in adopting the 2016 Amended Forest Plan.

The FEIS also does a very poor job of disclosing how much of the Tongass is not expected to meet its generally-recognized level of deer habitat capability of 18 deer per square mile to support a functioning dynamic between sustainable wolf populations and current human deer hunting. The agency does not explain how far below the habitat capability it expects individual wildlife analysis areas, biogeographic provinces, or even larger geographic areas to fall. The FEIS fails to disclose this information or examine the consequences for the wolves and human deer hunters. In fact, although the FEIS changes the projected percentage of habitat capability decrease from one percent in the DEIS to 14 percent in the FEIS, the agency does not discuss how it reached this new figure, nor does it explicate the significance of such a decline in habitat capability or whether such a decline is consistent with ensuring wolf viability.

The FEIS also never examines the impacts on wolves and human deer hunters given the intersection of limited habitat availability and the fact that the economically viable timber sales are almost certain to come from wolf habitat. The agency knows that 60-70 percent of the wolves in Southeast Alaska inhabit areas that will largely or exclusively have to be logged to achieve the timber goals set out in the 2016 Amended Forest Plan. In 2008, the Forest Service provided maps that examined the stumpage values across the Tongass. Here, the agency fails to disclose any of the relevant information regarding the overlap of positive timber sales and wolf habitat.

The FEIS also fails to grapple with missing information. When the agency confronts incomplete or unavailable information as part of the environmental review process, NEPA regulations

⁵⁵³ See DEIS Comment Letter at 53-58; U.S. Fish and Wildlife Service DEIS Letter at 4-5.

⁵⁵⁴ FEIS, App. I at I-84.

dictate how the agency must address that information.⁵⁵⁵ “[T]he agency shall include the information in the environmental impact statement,” if the missing information is: (1) ~~r~~relevant to reasonably foreseeable significant adverse impacts;” (2) ~~e~~essential to a reasoned choice among alternatives;” and (3) ~~t~~he overall costs of obtaining it are not exorbitant.”⁵⁵⁶ CEQ has explained that ~~t~~he evaluation of impacts under § 1502.22 is an integral part of an EIS and should be treated in the same manner as those impacts normally analyzed in an EIS.”⁵⁵⁷

With regard to wolves, the Forest Service admits that ~~—~~population trends are largely unknown” other than on Prince of Wales Island and the surrounding islands, and that ~~—~~there remains uncertainty about the degree of isolation” of Prince of Wales wolves.⁵⁵⁸ Population numbers and genetic makeup of Alexander Archipelago wolves are relevant to significant adverse impacts and essential to a reasoned choice among alternatives. But the Forest Service fails to analyze the importance of this missing information, fails to attempt to obtain it, and fails to determine whether the costs of obtaining it would be exorbitant. In so doing it violates NEPA.

In sum, the Forest Service’s failure to ensure the viability of wolves and to take a hard look at viability concerns violates NFMA and NEPA.

II. SITKA BLACK-TAILED DEER

Sitka black-tailed deer are a critical source of food for Alexander Archipelago wolves, as well as for people in Southeast Alaska. Regardless of whether the 2016 Amended Forest Plan threatens the viability of deer, the Forest Service has a duty to investigate and disclose the effects of the plan on deer so that it can properly balance timber values with ecosystem goals, as NFMA requires. But the Forest Service has not grappled with the on-the-ground effects to Sitka black-tailed deer of continuing old-growth logging for at least another 15 years, nor has it analyzed the effects on deer of logging in protected areas such as beach fringe and riparian buffers.

According to the Forest Service, ~~—~~Sitka black-tailed deer use lower elevation (below 800 feet elevation) productive old-growth forest habitats during the winter period. The quantity, quality, distribution and arrangement of winter habitat are considered the most important limiting factors for Sitka black-tailed deer in Southeast Alaska.”⁵⁵⁹ The Forest Service’s decision to continue old-growth logging for at least another 15 years has significant implications for deer. This is especially so in the parts of the Tongass where timber logging has historically been concentrated and will continue to be concentrated under the 2016 Amended Forest Plan: ~~—~~The greatest reductions in deer habitat capability have occurred in provinces where timber harvest has been

⁵⁵⁵ See *Mont. Wilderness*, 666 F.3d at 559-61.

⁵⁵⁶ 40 C.F.R § 1502.22(a).

⁵⁵⁷ 51 Fed. Reg. at 15,621.

⁵⁵⁸ FEIS at 3-237.

⁵⁵⁹ *Id.* at 3-230.

concentrated (the North Central Prince of Wales, East Baranof, and Etolin Island biogeographic provinces).”⁵⁶⁰

As explained above, the 2016 Amended Forest Plan will continue old-growth logging in the very same areas that have already been intensively logged and which provide essential habitat for old-growth dependent species such as Sitka black-tailed deer.⁵⁶¹ According to the FEIS, the 2016 Amended Forest Plan decreases the percentage of wildlife analysis areas with at least 18 deer per square mile by 14 percent.⁵⁶² The Forest Service has failed to address how a 14 percent reduction in deer habitat capability will affect deer and the people and wolves that rely on them.⁵⁶³ Without considering the effects of the action on deer, the Forest Service cannot properly balance wildlife goals with economic considerations as NFMA requires. The Forest Service has also failed to take a hard look at the effects of its action under NEPA.

III. NORTHERN GOSHAWKS

The DEIS Comment Letter described the life history of Tongass goshawks, which depend on highly to moderately productive old-growth forest to nest, grow, and forage.⁵⁶⁴ Several factors threaten the viability of northern goshawks throughout Southeast Alaska, including extremely large territories, already small and declining population size, and the particular vulnerability of goshawks on Prince of Wales Island.⁵⁶⁵ By disregarding the existing pressures on goshawks and inadequately assessing the possible effects of the 2016 Amended Forest Plan, the Forest Service has violated both NFMA and NEPA.⁵⁶⁶

A. The Forest Service Violates NFMA by Failing to Ensure Goshawks on the Tongass Remain Viable and Well-Distributed.

The 2016 Amended Forest Plan directly violates, and the agency reached arbitrary conclusions regarding, NFMA’s diversity requirements and the agency’s substantive obligation to adopt a forest plan that ensures goshawks remains viable in the Tongass.⁵⁶⁷ As explained above, the

⁵⁶⁰ *Id.* at 3-231.

⁵⁶¹ *See supra* pp. 79-82.

⁵⁶² FEIS at 3-274. Compare to DEIS at 3-253, which states that alternatives under the plan will “reduce the percentage of [wildlife analysis areas] with at least 18 deer per square mile by 1 to 2 percent.” Because the 14 percent reduction is new in the FEIS, commenters did not address it in the DEIS Comment Letter. The undersigned were unable to find any explanation in the record for the significant, 12-13 percent increase, in the reduction of wildlife analysis areas with at least 18 deer per square mile.

⁵⁶³ *See supra* p. 104.

⁵⁶⁴ DEIS Comment Letter at 58-59.

⁵⁶⁵ DEIS Comment Letter at 59-66.

⁵⁶⁶ *See id.* at 59-70.

⁵⁶⁷ 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19 (2000).

Forest Service is required to ensure that viable populations of wildlife will be maintained by providing habitat that is able to ~~support~~, at least, a minimum number of reproductive individuals” and is ~~well~~ distributed so that those individuals can interact with others in the planning area.”⁵⁶⁸ The 2016 Amended Forest Plan fails on both counts.⁵⁶⁹

1. *The 2016 Amended Forest Plan does not provide habitat capable of supporting a minimum number of reproductive individuals.*

The Forest Service has not ensured that sufficient habitat will remain under the 2016 Amended Forest Plan to support a viable population of goshawks. Even existing habitat may not suffice: past logging has pushed goshawks on the Tongass to expand their foraging ranges well beyond those of individuals elsewhere in North America.⁵⁷⁰ As described in the DEIS Comment Letter,⁵⁷¹ the energy expenditure associated with having to seek prey over such enormous areas poses a serious threat to goshawks in Southeast Alaska:

Physiologically, foraging is a trade-off between the energy expended to acquire food and energy derived from its acquisition. The energetic demands of foraging increase with distance traveled. The thresholds for individual survival and for supplying food to nestlings and a brooding mate in this energy balance are unknown, but habitat alteration that decreases foraging efficiency will push individuals and broods toward that threshold.⁵⁷²

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.”⁵⁷³ A Forest Service report concluded more than 20 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

⁵⁶⁸ 36 C.F.R. § 219.19 (2000).

⁵⁶⁹ To the extent that the agency’s suggestion that the 2016 Amended Forest Plan ~~meet[s]~~ the intent, if not the letter” of the diversity provisions of 36 C.F.R. § 219.9, FEIS, App. I at I-30, applies to its assessment of goshawks, it is insufficient. Even assuming it were the governing provision, neither the FEIS nor the Draft ROD offer any analysis of the 2016 Amended Forest Plan’s compliance with those requirements and for reasons similar to its failure to meet the 1982 regulation’s requirements, the 2016 Amended Forest Plan would also violate the 2012 regulation, were it to apply.

⁵⁷⁰ *Id.* at 60.

⁵⁷¹ *See id.*

⁵⁷² PR 769_05_000487 (U.S. Fish and Wildlife Service, Alaska Region, Juneau Fish and Wildlife Office, Queen Charlotte Goshawk Status Review at 66 (Apr. 25, 2007)) (USFWS Goshawk Review).

⁵⁷³ *Id.*

may be energetically stressed, have lower reproductive success, and be less resilient to further stress”⁵⁷⁴ Outside of the breeding season, range expansion is associated with increased risk of death. —Mortality of both male and female adult goshawks in Southeast Alaska was highest in late winter, when food availability is lowest” (and ranges were at their largest).⁵⁷⁵ The FEIS fails to acknowledge this situation, and the Forest Service therefore cannot guarantee that the 2016 Amended Forest Plan provides enough habitat to support a viable goshawk population.

The population of goshawks in Southeast Alaska is already small, largely isolated, and likely in decline following extensive old-growth logging in recent years.⁵⁷⁶ USFWS has estimated that there are only approximately 300 to 400 pairs of goshawks remaining in the region.⁵⁷⁷ That agency 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. The U.S. Fish and Wildlife Service has concluded that Tongass goshawks may be genetically diverse from their Canadian counterparts as well.⁵⁷⁸ Aside from noting that the U.S. Fish and Wildlife Service declined to list an Alaska population of goshawks in 2012, the FEIS does not discuss the population size or isolation of goshawks on the Tongass.⁵⁷⁹

Due to past and ongoing logging of old-growth, it is also highly probable that the Southeast Alaska population is getting smaller. The Tongass reported having logged 6,996 acres productive old-growth between fiscal years 2007 and 2012.⁵⁸⁰ In addition to federal logging, liquidation of old-growth habitat on other land ownerships has been considerable.⁵⁸¹ Compounding this problem, even if all old-growth logging in all of Southeast Alaska stopped

⁵⁷⁴ 2008 TLMP AR 603_0150 at 65 (G. C. Iverson *et al.*, *Conservation Assessment for the Northern Goshawk in Southeast Alaska* at 65 (Nov. 1996)) (Goshawk Conservation Assessment).

⁵⁷⁵ USFWS Goshawk Review at 33, 41 (citation omitted); *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)”).

⁵⁷⁶ *Id.* 7-9, 61-63; 72 Fed. Reg. 63,123, 63,135 (Nov. 8, 2007).

⁵⁷⁷ *See* 72 Fed. Reg. at 63,128; 77 Fed. Reg. 45,870, 45,887-88 (Aug. 1, 2012). This estimate is likely high. *See* DEIS Comment Letter at 61-63.

⁵⁷⁸ 72 Fed. Reg. at 63,135.

⁵⁷⁹ *See* FEIS at 3-226 to 3-227.

⁵⁸⁰ *See* U.S. Forest Service, 2012 Annual & Five Year Monitoring and Evaluation Report at 8 (May 2013).

⁵⁸¹ *See, e.g.*, USFWS Goshawk Review at 81 (“Intensive clear-cutting 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.”).

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 the U.S. Fish and Wildlife Service 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.”⁵⁸² The FEIS fails to recognize that the population of goshawks in Southeast Alaska is probably declining,⁵⁸³ a trend that calls into question whether the 2016 Amended Forest Plan provides sufficient habitat to support a minimum number of goshawks.

Beyond existing pressures, the Forest Service fails to analyze the adverse impacts on goshawks caused by clear-cutting old-growth forests for at least another 16 years.⁵⁸⁴ The FEIS generally observes that the proposed action would involve the lowest amount of logging of productive old growth of any of the alternatives, but it does not examine the effects of continued logging on the goshawk population.⁵⁸⁵ The FEIS notes that the 2016 Amended Forest Plan would retain more productive old-growth than the 1997 Forest Plan⁵⁸⁶ and therefore concludes that “~~h~~ of the action alternatives would be expected to be at least as likely as the current Forest Plan to maintain a viable, well-distributed goshawk population on the Tongass.”⁵⁸⁷ Again, however, the Forest Service fails to consider the adverse effects on goshawks of continued old-growth logging during the transition on Tongass National Forest lands or a reduction in the amount of those lands by conveyance or exchange. The agency cannot ensure the continued viability of goshawks merely by pointing to the possibility of a somewhat lower level of harmful activities over the next 16 or more years.

Specifically, the FEIS never examines how the proposed alternative will adversely affect the “three critical spatial components of the nesting home range:”⁵⁸⁸ nest area, post-fledging family area, and foraging area.⁵⁸⁹ This omission is particularly troubling because any successful conservation strategy must provide sufficient old-growth forest to support each of the corresponding goshawk activities.⁵⁹⁰ Without considering potential impacts on the habitats and types of habitat particularly important to goshawks across all land ownerships in Southeast Alaska, the Forest Service cannot ensure goshawk viability on the Tongass.

⁵⁸² 72 Fed. Reg. at 63,136.

⁵⁸³ See FEIS at 3-226 to 3-227.

⁵⁸⁴ FEIS at 2-15 to 2-16.

⁵⁸⁵ See *id.* at 3-258 to 3-260.

⁵⁸⁶ *Id.* at 3-293.

⁵⁸⁷ *Id.*

⁵⁸⁸ Smith Goshawk Comments at 3.

⁵⁸⁹ See *generally* FEIS at 3-258 to 3-260.

⁵⁹⁰ See Smith Goshawk Comments at 4, 6, 11.

The need for a spatially explicit analysis of the proposed action's impacts on goshawks is especially clear in light of the ineffectiveness of the current conservation strategy. Dr. Winston Smith explains in his comments on the DEIS that:

The conservation strategy developed for northern goshawks in the 1997 TLMP was fundamentally flawed from the outset (Smith 2004, Smith 2013). The most obvious shortcoming was the dependence on a network of old-growth reserves and other old-growth set asides in a matrix of cumulative, intensive, regeneration harvest (i.e., clearcut logging) to provide sufficient breeding season habitat (Smith 2013). Although the network of old-growth reserves and old-growth set asides (i.e., Old Growth LUD, riparian buffers, shoreline buffers) provide substantial old-growth forest habitat across managed landscapes, the size and spatial configuration of OGRs and set asides were not designed to accommodate the hierarchical structure and spatial scale of northern goshawk breeding ranges (Reynolds et al. 1992, Iverson et al. 1996, Iverson and René 1997, Smith 2013). Furthermore, the assumption that there would be ample habitat with breeding pairs to sustain viable goshawk populations in non-developmental LUDs was not supported by an extensive systematic survey of breeding goshawks in wilderness and roadless areas of Southeast Alaska (Schempf et al. 1996, Smith 2013).

...

Standards and guidelines for forest management actions were established purportedly using important ecological aspects of this species' biology (Iverson et al. 1996, Iverson and René 1997). At the landscape scale, guidelines were included to limit the amount (%) of logging that could occur in each watershed in select Biogeographic Provinces. Like many conservation measures (USDA Forest Service 1997: Appendix N), however, these guidelines were spatially inexplicit with respect to known goshawk breeding pairs or territories. That is, guidelines are generally applied across the planning area with little explicit consideration of special areas, needs, or landscape context. Not all watersheds are equal with regard to contributions to the habitat needs of goshawk breeding pairs. For example, watersheds near OGRs or other old-growth set asides may be more (or less) valuable than watersheds in a more heavily managed matrix.⁵⁹¹

⁵⁹¹ *Id.* at 4-5.

To ensure the viability of goshawks on the Tongass, the Forest Service must consider the 2016 Amended Forest Plan's impacts on specific habitats that support them; it cannot rely on overall amounts of old-growth retained.

Continued old-growth logging is exacerbated by the Forest Service's choices for second-growth management. "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)."⁵⁹² 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 and estuary fringe, and riparian management areas.

The Forest Service historically based its viability conclusions on the fact that habitat was maintained and viability ensured by forest plan standards and guidelines governing, among other factors, riparian and beach buffers, old-growth reserves, etc.⁵⁹³ For example, the 2008 Amended Forest Plan classifies areas within the beach⁵⁹⁴ and estuary fringe⁵⁹⁵ "as unsuitable for timber harvest."⁵⁹⁶ The Forest Service concluded that the "beach fringe was a very key feature of the overall Tongass conservation strategy," particularly with regard to goshawks.⁵⁹⁷ 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.⁵⁹⁸

⁵⁹² *Id.* at 9-10.

⁵⁹³ See DEIS Comment Letter at 66-69.

⁵⁹⁴ "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.

⁵⁹⁵ "The estuary fringe is an area of approximately 1,000 feet slope distance around all identified estuaries." *Id.*

⁵⁹⁶ *Id.* at 4-5.

⁵⁹⁷ 2008 TLMP 603_1127 at 2 (Iverson, C., Letter to Mary Friberg Re: Review of Conservation Strategy Review Summary at 2 (Mar. 17, 2006)).

⁵⁹⁸ *Id.*

The 2016 Amended Forest Plan deletes the portions of the standards and guidelines that prevented logging in the beach and estuary fringe. 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),⁵⁹⁹ but the Amended Plan now allows second-growth logging.⁶⁰⁰ The FEIS asserts that commercial young-growth harvest within the beach and estuary fringes and riparian management areas will be “minor and localized” under the proposed action.⁶⁰¹ As Dr. Smith observes in his comments, however, *any* impacts to these crucial areas may harm goshawks:

[L]oss of old-growth forests or inappropriate management of second-growth stands (i.e., timber harvest rather than science-based habitat management), especially in existing riparian buffers or other conservation elements, will increase the risk to viability of northern goshawks in multiple ways: reduce nesting habitat; reduce post-fledging area habitat, reduce foraging habitat and reduce prey species on which breeding pairs depend, most notably red squirrels, flying squirrels, blue or spruce grouse, and jay and crow populations.

...

Therefore, any forest plan amendment or revision that proposes to continue the harvest of old-growth forest or impose clearcuts in buffers or other conservation elements without including a comprehensive analysis of the Wildlife Conservation Strategy is imprudent and irresponsible as it ignores the best available credible science.⁶⁰²

In any event, the FEIS does not analyze the effects of removing these protections on goshawks, instead simply concluding that the 2016 Amended Forest Plan would, overall, be at least as likely as the current forest plan to maintain a viable population of Tongass goshawks.⁶⁰³ By resorting to a broad comparison to the current forest plan, the Forest Service fails to grapple with real threats to goshawk viability posed by removing protections already in place.

⁵⁹⁹ 2016 Amended Forest Plan at 5-13 to 5-14 (S-BEACH-01).

⁶⁰⁰ *See id.* at 5-4 to 5-5.

⁶⁰¹ FEIS at 3-293; *see also id.* at 3-258 to 3-259.

⁶⁰² Smith Goshawk Comments at 11 (emphasis added).

⁶⁰³ FEIS at 3-293; *see also id.* at 3-259.

2. *The 2016 Amended Forest Plan does not provide sufficient habitat to ensure goshawks remain well-distributed throughout the Tongass.*

The Forest Service has also failed to ensure that goshawk habitat is well-distributed across the Tongass. The 1982 Planning Rule requires that habitat be well-distributed –so that . . . individuals can interact with others in the planning area.”⁶⁰⁴ The FEIS does not discuss the current distribution of goshawks on the Tongass or impacts to the goshawk’s range,⁶⁰⁵ instead merely summarizing where most productive old-growth and young-growth logging would occur.⁶⁰⁶ For example, it notes that much of the beach and estuary fringe that is second growth considered suitable for logging is located in the North Central Prince of Wales biogeographic province.⁶⁰⁷ This oversimplified approach ignores existing areas of concern for goshawks and therefore cannot ensure well-distributed habitat.

As discussed in the DEIS Comment Letter, goshawks on Prince of Wales Island are more stressed, more sensitive, and more vulnerable to continued logging of old-growth forest than goshawks anywhere else in Southeast Alaska.⁶⁰⁸ Even without logging impacts, Prince of Wales Island and surrounding islands naturally lack important prey species. Red squirrels, which are significant prey for goshawks elsewhere in Southeast Alaska, are absent.⁶⁰⁹ There is a species of flying squirrel in the area, but it is nocturnal, and essentially unavailable to goshawks.⁶¹⁰ Moreover, the long-term viability of flying squirrels themselves is in doubt on Prince of Wales Island, because small habitat reserves are too small to sustain their populations in the absence of immigration, and the species’ ability to disperse adequately across intervening spaces, whether naturally unforested or logged, is in doubt.⁶¹¹

⁶⁰⁴ 36 C.F.R. § 219.19 (1982).

⁶⁰⁵ See FEIS at 3-226 to 3-227.

⁶⁰⁶ See *id.* at 3-258.

⁶⁰⁷ *Id.*, App. D at D-15 & D-16, Tbl. 6.

⁶⁰⁸ DEIS Comment Letter at 63-66.

⁶⁰⁹ Goshawk Conservation Assessment at 59; U.S. Forest Service, Big Thorne Project Final Environmental Impact Statement at 3-133 (June 2013).

⁶¹⁰ USFWS Goshawk Review at 39.

⁶¹¹ See W.P. Smith & D. K. Person, *Estimated persistence of northern flying squirrel populations in temperate rain forest fragments of Southeast Alaska*, *Biological Conservation* 137:626-636, 626 (2007); see also PR 769_05_000465 at PDF 9 (E. Flaherty, *et al.*, *Diet and Food Availability: Implications for Foraging and Dispersal of Prince of Wales Northern Flying Squirrels Across Managed Landscapes*, *JOURNAL OF MAMMOLOGY* 91(1):79-91, 87 (2010) (–Our results suggest low availability of potentially critical food items in managed habitats, which may constrain dispersal of [flying squirrels on Prince of Wales Island]”).

Prince of Wales Island and the surrounding islands also lack sooty (blue) grouse, another key food source for goshawks elsewhere in Southeast Alaska.⁶¹² Although spruce grouse inhabit the area, they are only about half the size of sooty grouse.⁶¹³ Further, logging has reduced the availability of spruce grouse to goshawks, because spruce grouse avoid clear-cuts, instead inhabiting 15- to 35-year-old second-growth,⁶¹⁴ where goshawks are at a distinct disadvantage because of the density of the tree stems, which interfere with flight lines and decrease hunting success.⁶¹⁵ As a result, researchers have identified food stress as a limitation for goshawks on Prince of Wales Island and surrounding islands in southern Southeast Alaska⁶¹⁶ For example, most females that died [of starvation] during Flatten et al.'s (2002) study were from the Prince of Wales area, which lacks red squirrels, hares and sooty grouse to support goshawks during winter (Titus et al. 2002).⁶¹⁷

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

Timber harvest has not been evenly distributed across the Tongass NF. There are 21 biogeographic provinces within the Tongass NF (USDA Forest Service 1996a), and several have had little or no harvest (e.g., Admiralty Island and the mainland provinces). Other provinces have had substantial timber harvest activity (e.g., northeast Chichagof and Prince of Wales Islands).⁶¹⁸

Already by 1995, more than 20 percent of the old-growth forest of northern Prince of Wales Island had been logged.⁶¹⁹ This percentage was almost twice as high as the next most-logged biogeographic provinces.⁶²⁰ For context, the Goshawk Conservation Assessment concluded that

⁶¹² USFWS Goshawk Review at 39; Goshawk Conservation Assessment at 59.

⁶¹³ USFWS Goshawk Review at 39.

⁶¹⁴ *Id.* at 63.

⁶¹⁵ *Id.* at 36.

⁶¹⁶ 72 Fed. Reg. at 63,136.

⁶¹⁷ USFWS Goshawk Review at 41.

⁶¹⁸ Goshawk Conservation Assessment at 7; *see also* 2008 FEIS at 3-201, Tbl. 3.9-20 (indicating that North Central Prince of Wales Island has been logged far more heavily than any other biogeographic province); 72 Fed. Reg. at 63,131 (“Corporate lands, which cover only 3 percent of the total area of Southeast Alaska but include 7 percent of the region’s 6.4 million ac (2.6 million ha) of productive forest, are distributed throughout Southeast Alaska, with concentrations on and near Prince of Wales Island”).

⁶¹⁹ Goshawk Conservation Assessment at 74, Tbl. 26.

⁶²⁰ *Id.*

—[h]arvest rates exceeding 13 percent [by 1995] . . . represent[ed] increased risk to long-term goshawk persistence.”⁶²¹

Subsequent logging on both federal and non-federal lands has substantially worsened the situation by contributing to cumulative effects. In 2007, the U.S. Fish and Wildlife Service reported that:

Threats to the Queen Charlotte goshawk in Southeast Alaska are greatest on Prince of Wales Island and the surrounding smaller islands at the southern end of the DPS. Timber harvest on both the Tongass National Forest and native corporation lands has been intensive in some parts of this area. Approximately 26 percent of the productive forest on Prince of Wales and the surrounding islands has been harvested, including some of the most productive forest lands in Southeast Alaska (Albert and Schoen 2006, pp. 15-18).⁶²²

Without acknowledging the existing lack of suitable habitat on Prince of Wales Island, the Forest Service cannot ensure that the 2016 Amended Forest Plan will provide well-distributed habitat for goshawks.

B. The Forest Service Violates NEPA by Failing to Take a Hard Look at Impacts on Goshawks.

The Forest Service’s review of the 2016 Amended Forest Plan’s effects on goshawks also violates NEPA. That statute requires agencies to take a “hard look” at the environmental effects of a proposed action.⁶²³ Where information is “essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant,” they must include that information in their analyses.⁶²⁴ Even where it is not essential or obtainable, they must acknowledge that there is incomplete or unavailable information.⁶²⁵ Agencies must also discuss in an FEIS any responsible opposing view that was not adequately covered by the DEIS.⁶²⁶ The Forest Service has fallen short of these requirements in its discussion of goshawks.

As noted above, the FEIS omits any mention of existing pressures on goshawks in Southeast Alaska.⁶²⁷ On the contrary, it suggests that their habitat remains largely intact⁶²⁸ thanks to the

⁶²¹ *Id.*

⁶²² 72 Fed. Reg. at 63,136.

⁶²³ *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 963 (9th Cir. 2002).

⁶²⁴ 40 C.F.R. § 1502.22(a).

⁶²⁵ *Id.* § 1502.22(b).

⁶²⁶ *Id.* § 1502.9(b); *Ctr. for Biological Diversity*, 349 F.3d at 1167.

⁶²⁷ *See supra* pp. 112-118.

system of old-growth reserves and other non-development LUDs.⁶²⁹ It also notes that “[p]rey species vary geographically, and include blue grouse, red squirrels, and a variety of forest-dwelling birds (spruce grouse, Steller’s jay, and ptarmigan []).”⁶³⁰ This discussion disregards the fact that certain areas, such as Prince of Wales Island, have undergone extensive logging and lack prey species important to goshawks.⁶³¹

Moreover, as Dr. Smith made clear in his comments, the agency fails to examine the risks to goshawks in light of more recent science:

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,

⁶²⁸ See FEIS at 3-226 (“Approximately 84 percent of the original high-volume [productive old-growth] existing in 1954, the time at which commercial timber harvest began on the Tongass National Forest, remains.”).

⁶²⁹ See *id.* at 3-227.

⁶³⁰ *Id.* at 3-226.

⁶³¹ DEIS Comment Letter at 63-65.

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].⁶³²

Because the Forest Service overlooked this and other recent science emphasizing the importance of old-growth forest to goshawks' reproductive success,⁶³³ the agency has not satisfied NEPA's command to take a hard look at the potential impacts of the proposed action on goshawks.

The FEIS does not attempt to estimate the numbers of goshawks present in the Tongass, information that is essential to the selection of a forest plan that ensures their viability. The Forest Service observes that the population of goshawks in Southeast Alaska is not listed under the ESA,⁶³⁴ but that fact does not absolve the agency of its duty to maintain the viability of the species in the Tongass.⁶³⁵ Nor would this information be exorbitantly expensive to obtain. The agency must disclose this information before adopting a forest plan,⁶³⁶ or at least acknowledge that the missing information is relevant to its assessment of the proposed action's effects on goshawks.⁶³⁷

The Forest Service has not adequately responded to points made in the DEIS Comment Letter and other submissions. The objections above identify several issues related to goshawks that the agency failed to address altogether in the FEIS (including in the response to comments, which largely reiterates the agency's rationale for concluding that the 2016 Amended Forest Plan will maintain a viable population of goshawks⁶³⁸). Further, while the agency anticipated Dr. Smith's comments in the DEIS, it did not sufficiently respond to his letter; both the DEIS and the FEIS simply note that —recent study suggests that some uncertainty remains with respect to the ability of Forest Plan conservation measures to contribute sufficient habitat to sustain well-distributed, viable populations of northern goshawks throughout Southeast Alaska (Smith

⁶³² Smith Goshawk Comments at 9-10 (emphasis omitted).

⁶³³ See DEIS Comment Letter at 66-69.

⁶³⁴ FEIS at 3-226.

⁶³⁵ See 36 C.F.R. § 219.19 (1982).

⁶³⁶ 40 C.F.R. § 1502.22(a).

⁶³⁷ *Id.* § 1502.22(b).

⁶³⁸ See FEIS, App. I at I-88.

2013).”⁶³⁹ A response that “completely fails to address or refute the concern presented” does not satisfy NEPA’s requirements.⁶⁴⁰

IV. ENDEMIC SPECIES

The 2016 Amended Forest Plan directly violates, and the agency reached arbitrary conclusions regarding, NFMA’s diversity requirements and the agency’s substantive obligation to adopt a forest plan that ensures that endemic species, including the southern red-backed vole, remain viable in the Tongass.⁶⁴¹ Additionally, as explained below, the FEIS violates NEPA.

A. The Forest Service Itself Identified Viability Concerns Regarding All Endemic Species on the Tongass.

In May 2016, approximately three months after the close of the DEIS comment period, the Forest Service released the draft environmental impact statement for the Wrangell Island Project.⁶⁴² As a result, this information was not available to include in the DEIS Comment Letter. In the Wrangell DEIS, the Forest Service explained that

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/>).⁶⁴³

Thus, the Forest Service acknowledges there are “increasing” viability concerns for endemic populations, but fails to explain those concerns in the FEIS or the Draft ROD. The FEIS acknowledges, moreover, that the 2016 Amended Forest Plan will adversely affect endemic species. It states, for example, that “[c]enters of endemism (areas with the presence of a high number of endemic species) have been identified in Southeast Alaska Some of these

⁶³⁹ DEIS at 3-212; FEIS at 3-227.

⁶⁴⁰ *Ctr. for Biological Diversity*, 349 F.3d at 1168.

⁶⁴¹ 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19 (2000).

⁶⁴² This is new information that did not exist at the time of the 2015 Draft Amended Forest Plan comment period, so the DEIS Comment Letter did not address these specific issues.

⁶⁴³ Wrangell DEIS at 83 (emphasis added).

locations coincide with areas that have also experienced high levels of timber harvest and which may be ready for [young-growth] harvest.”⁶⁴⁴

Given these concerns, it is all the more important that the Forest Service comply with the legal requirements to use contemporary information regarding those endemic populations to understand the potential effects of the 2016 Amended Forest Plan and the continued logging of old-growth for another 16 years or more. 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 adopt the 2016 Amended Forest Plan and still meet its substantive obligations to ensure the continued viability of these endemic populations.

Under NFMA, the Forest Service must explain why it concluded it can provide for the long-term viability of endemic populations given the contemporary state of the science, the continuation of old-growth logging for another 16 years, and the changes reflected in the 2016 Amended Forest Plan.⁶⁴⁵ 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. Moreover, failing to provide this information in the FEIS renders the analysis incomplete and misleading, which violates NEPA.

B. The Forest Service Must Address Expert Opinion Regarding the Impacts of Logging on the Viability of the 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*).⁶⁴⁶ As explained below, the both the FEIS and the Draft ROD fail to analyze the impacts of the 2016 Amended Forest Plan on this endemic vole. Indeed, the FEIS only mentions the southern red-backed vole once and then only to list it as an endemic species.⁶⁴⁷ For these reasons, the concerns discussed below raise both NEPA and NFMA infirmities.

Dr. Winston Smith’s comments regarding the Wrangell Island Project raise serious questions regarding logging’s impacts, as well as the agency’s ability to ensure the viability of this

⁶⁴⁴ FEIS at 3-247.

⁶⁴⁵ To the extent that the agency’s suggestion that the 2016 Amended Forest Plan “meet[s] the intent, if not the letter” of the diversity provisions of 36 C.F.R. § 219.9, FEIS, App. I at I-30, applies to its assessment of endemic species, it is insufficient. Even assuming it were the governing provision, neither the FEIS nor the Draft ROD offer any analysis of the 2016 Amended Forest Plan’s compliance with those requirements and for reasons similar to its failure to meet the 1982 regulation’s requirements, the 2016 Amended Forest Plan would also violate the 2012 regulation, were it to apply.

⁶⁴⁶ The Wrangell DEIS was released after the close of the comment period on the 2015 Draft Amended Forest Plan and, as a result, the DEIS Comment Letter could not have addressed these concerns.

⁶⁴⁷ FEIS at 3-248, Tbl. 3.10-7.

subspecies of southern red-backed vole.⁶⁴⁸ According to the Wrangell DEIS, “[t]he southern red-backed vole (*Myodes gapperi wrangeli*) is the only endemic small mammal identified on Wrangell Island,” noting it also occurs on nearby Sergief Island.⁶⁴⁹ The Forest Service, however, does not disclose that — Wrangell Island is home to virtually the entire population of this subspecies in the Tongass.”⁶⁵⁰

The FEIS fails to explain that 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 percent of the 1998 population.⁶⁵¹

In describing the direct and indirect effects of the Wrangell Island Project on this endemic species, the Wrangell DEIS acknowledged “[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.”⁶⁵² The preferred alternative for the Wrangell Island Project would eliminate approximately nine percent of the existing productive old-growth habitat on National Forest Service lands.⁶⁵³ The Forest Service offers the nonsensical assertion that “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.”⁶⁵⁴ In the end, the Wrangell DEIS concludes the voles “*should continue to exist* on Wrangell Island at current levels.”⁶⁵⁵

In stark contrast, Dr. Smith has raised serious concerns regarding these voles. He concluded 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 foot old-growth timber sale project.”⁶⁵⁶ Dr. Smith expressed specific concerns regarding the agency’s ability to ensure the viability of these voles:

⁶⁴⁸ See generally W. P. Smith, Comments on the Wrangell Island Timber Sale Project (July 2016) (Smith Vole Comments). Again, the Forest Service’s release of the Wrangell DEIS post-dates the close of the FEIS comment period, so this information was not available at the time of the DEIS Comment Letter.

⁶⁴⁹ Wrangell DEIS at 83.

⁶⁵⁰ Smith Vole Comments at 1.

⁶⁵¹ *Id.* at 2.

⁶⁵² Wrangell DEIS at 109.

⁶⁵³ *Id.* at 110-109, Tbl. 42.

⁶⁵⁴ *Id.* at 110.

⁶⁵⁵ *Id.* (emphasis added).

⁶⁵⁶ Smith Vole Comments at 2.

[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.*⁶⁵⁷

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.⁶⁵⁸ It explained that the Forest Service concluded endemics faced the lowest overall likelihood of all species-specific effects.⁶⁵⁹ The agency, however, never analyzed whether losing these voles on Wrangell Island or even threatening to lose them on Wrangell raises viability concerns.

The logging contemplated under the 2016 Amended Forest Plan seriously exacerbates these concerns, including the likelihood of the Forest Service's ability to ensure the viability of the southern red-backed vole, including the Wrangell Island subspecies, on the Tongass. Yet neither the FEIS nor the Draft ROD provide any assessment of the impacts of the 2016 Amended Forest Plan on this vole or describe the likelihood of its long-term viability on the Tongass.⁶⁶⁰ Given the agency's admission in the Wrangell DEIS that the "long-term viability of . . . endemic populations is unknown, but of increasing concern"⁶⁶¹ and the agency's paltry conclusion that the southern red-backed vole "should continue to exist" (albeit at unknown levels),⁶⁶² the FEIS and the Draft ROD fail to meet the mandates of NEPA or NFMA.

⁶⁵⁷ Smith Vole Comments at 3 (emphasis added).

⁶⁵⁸ See, e.g., 2008 FEIS at 2-48, 3-196 to 3-197, 3-248 to 3-250.

⁶⁵⁹ *Id.* at 2-48.

⁶⁶⁰ To the extent that the agency's suggestion that the 2016 Amended Forest Plan "meet[s] the intent, if not the letter" of the diversity provisions of 36 C.F.R. § 219.9, FEIS, App. I at I-30, applies to its assessment of southern red-backed voles, it is insufficient. Even assuming it were the governing provision, neither the FEIS nor the Draft ROD offer any analysis of the 2016 Amended Forest Plan's compliance with those requirements and for reasons similar to its failure to meet the 1982 regulation's requirements, the 2016 Amended Forest Plan would also violate the 2012 regulation, were it to apply.

⁶⁶¹ Wrangell DEIS at 83.

⁶⁶² *Id.* at 110.

V. NORTHERN FLYING SQUIRREL

The 2016 Amended Forest Plan directly violates, and the agency reached arbitrary conclusions regarding, NFMA's diversity requirements and the agency's substantive obligation to adopt a forest plan that ensures northern flying squirrels remain viable in the Tongass.⁶⁶³ Additionally, for the reasons described below, the FEIS violates NEPA.

In the 1997 FEIS, the Forest Service noted that ~~the~~ northern flying squirrel was rated with the highest viability concern among all mammals assessed by Suring et al. (1993).⁶⁶⁴ The northern flying squirrel was a design species for small size old-growth reserves (<10,000 acres [4,050 hectares]) in the 1997 Forest Plan because of their assumed ~~dependency~~ on the forested habitats.⁶⁶⁵ As explained on pages 70 to 74 of the DEIS Comment Letter, the Forest Service all but ignores the 2016 Amended Forest Plan's impacts on northern flying squirrels.

The FEIS and the Draft ROD ignore the fact that the conclusions underlying the Conservation Strategy's application to flying squirrels is no longer supported by the best available science. ~~Smith~~ et al. (2011) determined that at least half of the small old-growth reserves on [Prince of Wales] are not functionally connected to other reserves or other old-growth set asides that comprise the OGR strategy. Thus, a significant proportion of the flying squirrel populations in small OGRs are isolated.⁶⁶⁶ As a result of this isolation, ~~the~~ risk of local extinction is substantially higher.⁶⁶⁷ This also means that ~~there~~ are fewer opportunities for demographic or genetic rescue from nearby populations.⁶⁶⁸ These concerns lead Dr. Smith to conclude:

The best available science does not support fundamental assumptions of the Old-growth Reserve Strategy; in particular, small OGRs in isolation do not have a high probability of maintaining viable flying squirrel populations, and the network of small OGRs and other old-growth set asides in the matrix on POW is not functionally connected.⁶⁶⁹

He goes on to explain that ~~the~~ further disturbance . . . of the OGR network . . . and conservation measures will almost certainly increase the risk to [the] viability of northern flying squirrels, and possibly other endemic small mammal species (e.g., Wrangell Island red-backed vole).⁶⁷⁰ He

⁶⁶³ 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19 (2000).

⁶⁶⁴ 1997 FEIS at 3-414.

⁶⁶⁵ Schoen, J. et al., *Northern Flying Squirrel (Glaucomys sabrinus)*, in Southeast Alaska Conservation Assessment at 2 (2007) (citing Suring et al. 1993).

⁶⁶⁶ Smith Small Mammals Comments at 8.

⁶⁶⁷ *Id.*

⁶⁶⁸ *Id.*

⁶⁶⁹ *Id.* at 9.

⁶⁷⁰ *Id.*

notes that further loss of old-growth forests and second-growth logging—especially in existing riparian buffers or other conservation elements, will increase the risk to viability.”⁶⁷¹

The FEIS acknowledges that—some biologists suggest that many reserves on Prince of Wales Island may be too small or spaced too far apart to support populations of Prince of Wales flying squirrels over the long term or maintain functional connectivity to support a back-and-forth exchange between flying squirrel populations (Pyare and Smith 2005; Smith et al. 2011).”⁶⁷² Yet, in response to concerns that the DEIS only offered a single paragraph to explain the impacts of the proposed changes to the forest plan on flying squirrels,⁶⁷³ the FEIS offers only *two* paragraphs and they still ignore all of these concerns.⁶⁷⁴ The response to comments amounts to little more than two sentences:

The DEIS acknowledges that flying squirrels have limited dispersal capability and that abundance may be reduced through forestry practices that reduce the structure or age of residual stands or create openings too wide (page 3-259). Some additional discussion has been added to the FEIS regarding cumulative effects to flying squirrel and flying squirrel viability.⁶⁷⁵

Notably, page 3-259 in the FEIS relates to goshawks—not flying squirrels.

Since 1997, the Forest Service has consistently based its conclusions regarding the likelihood of ensuring viable, well-distributed northern flying squirrel populations on the OGR system and small OGRs in particular. In the 1997 FEIS, for example, the agency stated that the—[c]onservation needs of flying squirrels specifically included a 1,600 acre small habitat reserve in each 10,000 acre watershed to sustain habitat to support well-distributed populations capable of interaction across the landscape.”⁶⁷⁶ In assessing viability, the Forest Service concluded:

Alternative 11, among all alternatives except 1, presents the highest likelihood of sustaining habitat to support viable populations of endemic and wide ranging mammals The very large reserves in Alternative 11, especially in heavily harvested provinces, and the forest-wide system of mapped large, medium and *especially small reserves* is a multiscale ecosystem hedge against significant uncertainty. Thus the optimum strategy for these species and associated unknowns is a significant reserve

⁶⁷¹ *Id.*

⁶⁷² FEIS at 3-249 to 3-250.

⁶⁷³ DEIS at 3-259.

⁶⁷⁴ FEIS at 3-249 to 3-250.

⁶⁷⁵ *Id.*, App. I at I-92.

⁶⁷⁶ 1997 FEIS at 3-414.

system that preserves entire landscapes and ecosystems well distributed across the forest at multiple scales from small old growth blocks in every watershed to large and medium reserves on up to the 1-2 very large reserves in each province.⁶⁷⁷

In the 2008 FEIS, the agency again relied on the OGR system, explaining it is ~~important~~ for sustaining well-distributed populations of flying squirrels.⁶⁷⁸

Yet neither the FEIS nor the Draft ROD explain the agency's conclusions regarding the 2016 Amended Forest Plan's likelihood of ensuring flying squirrel viability given the assumptions regarding small OGRs is not supported by contemporary science. Instead, the FEIS states: ~~A~~ thorough analysis of this species occurred during the 1997 and 2008 Forest Plan efforts and results documented that the conservation strategy was functioning adequately to maintain the viability of this species in the planning area.⁶⁷⁹ The 1997 Forest Plan and the 2008 Amended Forest Plan were based on the scientific understanding of the day. Today, the Forest Service knows the OGR system is not working as expected, meaning there are unanswered questions regarding the viability of flying squirrels (and other small mammal endemics). The Forest Service cannot ignore this information.

The Forest Service must address, for the first time in most instances, the science questioning the efficacy of the agency's flying squirrel management and its ability to ensure squirrels remain viable and well-distributed.⁶⁸⁰ The agency has not evaluated the impacts caused by the continued loss of habitat, especially on Prince of Wales Island. It also has not taken into account all available information on differential utilization of various forest types and structures, and cumulative effects of past and foreseeable activities affecting habitat and the resulting ability to ensure the continued viability of flying squirrels on the Tongass. In so doing, without sufficient scientific basis and explanation, the agency violates NFMA and its regulatory requirements. In addition, by failing to disclose conflicting opinion and presenting misleading and incomplete information in the FEIS, the agency violates NEPA.

⁶⁷⁷ *Id.* at 3-414 to 3-415 (emphasis added).

⁶⁷⁸ 2008 FEIS at 3-288.

⁶⁷⁹ FEIS at 3-284.

⁶⁸⁰ To the extent that the agency's suggestion that the 2016 Amended Forest Plan ~~meet[s]~~ the intent, if not the letter" of the diversity provisions of 36 C.F.R. § 219.9, FEIS, App. I at I-30, applies to its assessment of northern flying squirrels, it is insufficient. Even assuming it were the governing provision, neither the FEIS nor the Draft ROD offer any analysis of the 2016 Amended Forest Plan's compliance with those requirements and for reasons similar to its failure to meet the 1982 regulation's requirements, the 2016 Amended Forest Plan would also violate the 2012 regulation, were it to apply.

CONCLUSION

For the reasons stated above, the 2016 Amended Forest Plan is not only unlawful, but it fails to advance the Department of Agriculture's visionary goal of ~~transitioning~~ quickly away from timber harvesting in . . . old-growth forests."⁶⁸¹ It does not transition the Tongass. It accomplishes little more than entrenching and prolonging the controversy regarding unsustainable, export-dependent, industrial-scale, old-growth logging. In so doing, the Forest Service misses an enormous opportunity to bring about much needed change for the Tongass and to embrace an ecologically and economically sustainable future, and squanders its most influential opportunity to demonstrate our country's commitment to protecting its forest carbon sinks pursuant to the Paris Agreement.

Thank you for your careful attention to this objection.



Holly Harris
Tom Waldo
Rebecca Noblin
Erin Whalen
Kenta Tsuda
Peter Heisler
Eric Jorgensen
EARTHJUSTICE⁶⁸²
325 Fourth Street
Juneau, AK 99801
907-500-7133

Meredith Trainor
Executive Director
SOUTHEAST ALASKA CONSERVATION
COUNCIL
Address 224 Gold Street
Juneau, AK 99801
907-586-6942

Kristen Miller
Conservation Director
ALASKA WILDERNESS LEAGUE
122 C Street NW, Suite 240
Washington, DC 20001
202-266-0412

Miyoko Sakashita
Senior Counsel
CENTER FOR BIOLOGICAL DIVERSITY
1212 Broadway, Suite 800
Oakland, CA 94612
510-844-7108

⁶⁸¹ 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).

⁶⁸² As Earthjustice is the ~~lead~~ "objector" for purposes of 36 C.F.R. § 219.54(c)(3), it provides a signature pursuant to 36 C.F.R. § 219.54(c)(2). Additional signatures or other verification of authorship will be provided ~~upon~~ request." *Id.*

Pat Lavin
Alaska Representative
DEFENDERS OF WILDLIFE
441 W. 5th Ave., Suite 302
Anchorage, AK 99501
907-276-9410

Dominick A. DellaSala, Ph.D
President, Chief Scientist
GEOS INSTITUTE
84 Fourth Street
Ashland, Oregon 97520
541-482-4459 x302

Niel Lawrence
Alaska Director
NATURAL RESOURCES DEFENSE
COUNCIL
3723 Holiday Drive, SE
Olympia, WA 98501
360-534-9900

Dan Ritzman
Associate Director, Our Wild America
SIERRA CLUB
180 Nickerson St #202
Seattle, WA 98109
206-378-0114

Osprey Orielle Lake
Executive Director
WOMEN'S EARTH AND CLIMATE
ACTION NETWORK
20 Sunnyside Ave, A-438
Mill Valley, CA 94941
415-722-2104

**DOCUMENTS CITED IN EARTHJUSTICE *ET AL.*'S OBJECTION
2016 AMENDED TONGASS LAND MANAGEMENT PLAN
(August 30, 2016)**

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

Alaback, P. *et al.*, Letter to Forrest Cole (Dec. 4, 2014) (Public Comment – Knight_Rebecca
(Attachment)_44372.pdf)

Alaska et al. v. U.S. Dep't of Agriculture et al., Memorandum of Points and Authorities in
Support of Federal Defendants' Motion for Summary Judgment and in Opposition to Plaintiff's
and Plaintiff-Intervenors' Motions for Summary Judgment, No. 1:11-cv-01122-RJL
(July 10, 2015) (Dep't of Agriculture *Alaska et al.* Summary Judgment Brief)

Alaska Wilderness League *et al.*, Letter to Earl Stewart, Tongass Forest Supervisor
(Feb. 22, 2016) (DEIS Comment Letter)

Albert, D. M. & J. W. Schoen, *Use of Historical Logging Patterns to Identify Disproportionately
Logged Ecosystems Within Temperate Rainforests of Southeastern Alaska*, CONSERVATION
BIOLOGY 27(4): 774-784 (2013) (Albert & Schoen 2013)

Alexander, Susan, Memorandum to Inga Petaisto, Re. Employment Coefficients and Indirect
Effects, for NEPA Planning: 2012 Update (Aug. 9, 2012) (Alexander Memo)

American Fisheries Society *et al.*, Letter to Secretary Vilsack Re: Old-growth logging transition
on the Tongass National Forest (Jan. 20, 2015) (769_02_000058)

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)

Audubon Alaska, Correction to Big Thorne SIR Comments, Updated USFS Deer Habitat
Capability Map (Aug. 7, 2014)

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

Berman, M. *et al.*, *Climate Change and Alaska's Forests: People, Problems and Policies* in
Center for Global Change & Arctic System Research, *Assessing the Consequences of Climate
Change for Alaska and the Bering Sea Region* (G. Weller & P. A. Anderson eds., October 1998)
2008 TLMP AR 603_0684)

Birdsey, R. *et al.*, *Mitigation Activities in the Forest Sector to Reduce Emissions and
Enhance Sinks of Greenhouse Gases*, in *THE IMPACT OF CLIMATE CHANGE ON AMERICA'S
FORESTS: A TECHNICAL DOCUMENT SUPPORTING THE 2000 USDA FOREST SERVICE RPA
ASSESSMENT* (L. A. Joyce & R. Birdsey eds. 2000)

Booth, M.S. & R. Wiles, *Clear cut Disaster: Carbon Loophole Threatens U.S. Forests* (2010)

Brackley, A.M. *et al.*, *Timber Products Output and Timber Harvests in Alaska: An Addendum* (August 2008)

Brysse, K. *et al.*, *Climate Change Prediction: Erring on the Side of Least Drama?*, 23 GLOBAL ENV'T'L CHANGE 327 (2013)

Bschor, Dennis E., Regional Forester, Memorandum to Forest Supervisor, Tongass National Forest, Re. Limited Interstate Shipments of Unprocessed Sitka Spruce and Western hemlock Timber (Mar. 14, 2007) (Bschor 2007)

Buchholz, T. *et al.*, *A global meta-analysis of forest bioenergy greenhouse gas emission accounting studies*, 8 GCB BIOENERGY 281 (2015) (Buchholz 2015)

Center for Biological Diversity & Greenpeace, Petition to List the Alexander Archipelago Wolf (*Canis Lupus Ligoni*) as Threatened or Endangered Under the United States Endangered Species Act (Aug. 10, 2011) (769_05_000502)

Coleman, R. & D. Castillo, *Tongass Timber Appraisal Issues* (Feb. 1, 2007) (2008 TLMP AR 603_1777)

Council on Environmental Quality, National Environmental Policy Act Regulations; Incomplete or Unavailable Information, Final Rule, 51 Fed. Reg. 15,618 (Apr. 25, 1986)

D'Amore, D. & R. Edwards, *Climate and Carbon in Southeast Alaska: Beyond the Threshold of Change in a Dynamic Landscape* (2014) (PR 769_05_000065)

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

DeGayner, G. & C. Iverson, Conservation Strategy Review: An Assessment of New Information Since 1997, Conservation Strategy Overview – “Setting the Stage” (Undated) (2008 TLMP AR 603_0981)

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 *et al.* 2015) (769_05_002227)

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) (769_05_0011114)

DellaSala, D. & M. Koopman, *Thinning Combined with Biomass Energy Production May Increase, Rather Than Reduce, Greenhouse Gas Emissions*, GEOS INSTITUTE (2015) (DellaSala & Koopman 2015) (PR 769_05_000862)

Dombeck, M. & J.W. Thomas, *P-I Focus: Declare harvest of old-growth forests off-limits and move on*, SEATTLE P-I OP ED (Aug. 23, 2003)

Enriquez, Jorge, Acting District Ranger, Memorandum to Earl Stewart, Forest Supervisor, Re: North Kuiu Timber Sale Petersburg Ranger District (Feb. 5, 2016) (North Kuiu Export Memo)

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

Flaherty, E. *et al.*, *Diet and Food Availability: Implications for Foraging and Dispersal of Prince of Wales Northern Flying Squirrels Across Managed Landscapes*, JOURNAL OF MAMMOLOGY 91(1):79-91 (2010) (PR 769_05_000465)

Goldfuss, C., Council on Environmental Quality, Memorandum to Heads of Federal Departments and Agencies, Re: Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (Aug. 1, 2016) (CEQ Guidance)

Grewe, N., Email to M. Lisowski Re: Question from Forrest (Apr. 2, 2015) (PR 769_05_000794)

Gunn, J. S. *et al.*, *Biogenic vs. geologic carbon emissions and forest biomass energy production*, 4 GCB BIOENERGY 239 (2012) (Gunn)

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

Hayward, G. *et al.*, Draft – Evaluating Integrity of the Tongass National Forest Old-growth Habitat Conservation Strategy (Undated) (PR 769_05_000837)

Headwaters Economics, *The Tongass National Forest and the Transition Framework: A New Path Forward?* (Nov. 2014) (Headwaters Report) (PR 769_05_000671)

Hennon, P. E. *et al.*, *A Climate Adaptation Strategy for Conservation and Management of Yellow-Cedar in Alaska* (Jan. 2016) (769_05_000853)

Hjerpe, E. E. & A. Hussain, *Willingness to pay for ecosystem conservation in Alaska's Tongass National Forest: a choice modeling study*, 21 ECOLOGY AND SOC'Y Art. 8 (2016)

Holtmark, B., *The outcome is in the assumptions: analyzing the effects on atmospheric CO2 levels of increased use of bioenergy from forest biomass*, 5 GCB BIOENERGY 467 (2013)

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)

Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (S. Solomon *et al.* eds., 2007)

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 (O. Edenhofer *et al.* eds., 2014) (Climate Change 2014 Working Group III Report)

Intergovernmental Panel on Climate Change, IPCC Factsheet: What is the IPCC? (Aug. 30, 2013)

Iverson, C., Letter to Mary Friberg Re: Review of Conservation Strategy Review Summary (Mar. 17, 2006) (2008 TLMP 603_1127)

Iverson, G. C. *et al.*, *Conservation Assessment for the Northern Goshawk in Southeast Alaska* (Nov. 1996) (Goshawk Conservation Assessment) (2008 TLMP AR 603_0150)

Janisch, J. E. & M. E. Harmon, *Successional changes in live and dead wood carbon stores: implications for net ecosystem productivity*, 22 TREE PHYSIOLOGY 77 (2002) (Janisch & Harmon) (769_05_000091)

Jayarathne, T. *et al.*, *Emissions of Fine Particle Fluoride from Biomass Burning*, 48 ENVTL. SCI. & TECH. 12,636 (2014)

Johnson, P., Letter to E. Stewart Re: Draft Environmental Impact Statement for the Tongass Land and Resources Management Plan Amendment, Alaska (Feb. 17, 2016) (U.S. Fish and Wildlife Service DEIS Letter) (Public Comment – Cochon_Grace (Attachment))

Kiester, A. R. & C. Eckhardt, *Review of the Wildlife Management and Conservation Biology on the Tongass National Forest: A Synthesis with Recommendations* (Mar. 1994) (10_00101)

Kirchhoff, M., *Comments on Draft Tongass Advisory Committee Recommendations* (Apr. 19, 2015) (Kirchhoff TAC Comments)

Kirchhoff, M., Email to J. Anderson *et al.* (Jan. 21, 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)

Krankina, O. N. & M. E. Harmon, *Forest Management Strategies for Carbon Storage*, in FOREST, CARBON AND CLIMATE CHANGE: A SYNTHESIS OF SCIENCE FINDINGS (2006)

Lacey, E. A., Ph.D., President, American Society of Mammalogists, Letter to Dr. Kimberley Titus, Alaska Department of Fish and Game (Nov. 1, 2015)

Law, B., Presentation, *Role of Forest Ecosystems in Climate Change Mitigation* (Feb. 2014) (Law)

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

Lewtas, J., *Air pollution combustion emissions: Characterization of causative agents and mechanisms associated with cancer, reproductive, and cardiovascular effects*, 636 MUTATION RESEARCH 95 (2007)

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

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

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

McDowell Group, *Economic Impact of Alaska's Visitor Industry 2013-14 update* (Feb. 2015) (McDowell 2015)

McDowell Group, *Economic Impact of Alaska's Visitor Industry 2014-15 update* (Apr. 2016) (McDowell 2016)

McDowell Group, *The Economic Value of Alaska's Seafood Industry* (Dec. 2015)

Mehrkens, J., Scoping Comments for Proposed TLMP Amendment (June 19, 2014) (Mehrkens Scoping Comments)

Merriam-Webster, Definitions, Qualitative, Quantitative

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

Natural Resources Defense Council and Geos Institute, Letter to Earl Stewart, Tongass Forest Supervisor (Feb. 22, 2016) (NRDC *et al.* DEIS Comment Letter)

Niemi, E., *Socioeconomic Comments: Logging Costs* (Feb. 2016)

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

O'Brien, Austin, Supervisory Forester, E-mail to Charles Streuli & Robert Dalrymple (June 9, 2016) (O'Brien Email)

O'Leary, Daniel, Timber Valuation Specialist, E-mail to Inga Petaisto & Dave P. Harris (April 8, 2016), with attachment

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

Pendleton, Beth G., Regional Forester, U.S. Forest Service, Letter to Holly Harris, Earthjustice (July 25, 2016)

Pendleton, Beth G., Regional Forester, Memorandum to Earl Stewart, Forest Supervisor, Re: North Kuiu Timber Sale (May 6, 2016)

Person, D. K., Comments Regarding the Draft Supplemental Information Report for the Big Thorne Project (June 23, 2014)

Person, D. K., Statement Regarding the Big Thorne Project, Prince of Wales Island (Aug. 15, 2013) (Person Statement)

Person, D. *et al.*, *The Alexander Archipelago Wolf: A Conservation Assessment* (Nov. 1996)) (Wolf Conservation Assessment) (PR 769_05_000523)

Person, D. K. & T. J. Brinkman, Chapter 6: *Succession Debt and Roads, Short- and Long-Term Effects of Timber Harvest on a Large Mammal Predator-Prey Community in Southeast Alaska*, in NORTH PACIFIC TEMPERATE RAINFORESTS (G. Orians & J. Schoen eds., 2013)

Pirraglia, W., What is the Difference Between Net Revenue & Operating Income, HOUSTON CHRONICLE (undated)

Repo, A. *et al.*, *Can we produce carbon and climate neutral forest bioenergy?*, 7 GCB BIOENERGY 253 (2015)

Roffler, G. *et al.*, *Wolf Population Estimation on Prince of Wales Island, Southeast Alaska: A Comparison of Methods* (2016)

Roloff, G. J., Michigan State University, Letter to Dr. G. Hayward, U.S. Forest Service (June 23, 2015) (Roloff Letter) (769_05_000838)

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

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

Schmiegelow, F., Professional Review of the Proposed Draft: Evaluating Integrity of the Tongass Old-Growth Habitat Conservation Strategy (Schmiegelow 2015 Review) (PR 769_05_000840)

Schoen, J. *et al.*, *Northern Flying Squirrel (Glaucomys sabrinus)*, in SOUTHEAST ALASKA CONSERVATION ASSESSMENT (2007)

Schoen, John, Letter to Earl Stewart (Feb. 20, 2016) (Schoen 2016 Letter) (Public Comment – Schoen_John (Attachment))

Schulze, E. *et al.*, *Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral*, 4 GCB BIOENERGY 611-616 (2012)

Smith, J. E. *et al.*, *How to Estimate Forest Carbon for Large Areas from Inventory Data*, J. FORESTRY (July-August 2004)

Smith, P. *et al.*, *Agriculture, Forestry and Other Land Use (AFOLU)*, in *Climate Change 2014: Mitigation of Climate Change*, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press (Edenhofer, O., R. *et al.* eds., 2014) (Report of Working Group 3)

Smith, W., Comments on the Wildlife Conservation Strategy as represented in the Proposed Land and Resource Management Plan (Feb. 2016) (Smith Conservation Strategy Comments), and attachments

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

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

Smith, W. P. & D. K. Person, *Estimated persistence of northern flying squirrel populations in temperate rain forest fragments of Southeast Alaska*, BIOLOGICAL CONSERVATION 137:626-636 (2007) (Smith and Person 2007)

Southeast Alaska Conservation Council *et al.*, Letter to F. Cole, Re. Scoping (June 26, 2014)

Southeast Alaska Conservation Council *et al.*, Letter to F. Cole, Re: Request for Addition of a Conservation Alternative into Tongass Transition Framework (Feb. 5, 2015) (SEACC *et al.* 2015 Letter) (PR 769_02_000013)

Southeast Alaska Conservation Council *et al.*, Letter to F. Cole, Re. Additional Information About Our Request for Inclusion of a Conservation Alternative in the Tongass Transition Amendment Process (Mar. 5, 2015)

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

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

State of Alaska, Tongass Land and Resource Management Plan Amendment Draft Environmental Impact Statement (DEIS) Agency Comments (Feb. 22, 2016) (Public Comment, Bluemink Elizabeth (Attachment)_103771)

State of Alaska, Department of Fish and Game, Division of Wildlife Conservation, Gretchen Roffler Memorandum to Ryan Scott (June 16, 2015)

Suring, L. *et al.*, A Proposed Strategy for Maintaining Well-Distributed, Viable Populations of Wildlife Associated With Old-Growth Forests in Southeast Alaska (May 1993) (10_00102)

Suring, L. H., Letter to G. Hayward, U.S. Forest Service (June 23, 2015) (Suring 2015 Letter) (769_05_000839)

Swanson, D. *et al.*, Scientific Information and the Tongass Land Management Plan: Key Findings from the Scientific Literature, Species Assessments, Resource Analyses, Workshops, and Risk Assessment Panels (Nov. 1996) (10_00103)

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

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

Tetra Tech, Tongass National Forest Plan Amendment Energy Resource Report (Oct. 2015) (PR 769_05_000677)

The World Bank, Outcomes from COP21: Forests as a Key Climate and Development Solution (Dec. 18, 2015)

Thomas, J.W. *et al.*, Letter to the President by 78 North American Scientists calling for a national old growth policy to protect the remaining old growth on national forest lands throughout the US (June 25, 2014)

Timber Harvest History graphs and tables 1952-2015

United Nations, Paris Agreement under the United Nations Framework Convention on Climate Change (Dec. 12, 2015)

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) (USDA Press Release 2010)

U.S. Department of Agriculture, *Secretary Vilsack Announces Steps to Conserve 17-Million Acre Tongass National Forest by Transitioning to Sustainable, Second Growth Forest Management*, Press Release No. 0140.13 (July 3, 2013)

U.S. Department of Agriculture, Forest Service, Alaska Region, *Scenario Analysis: Young Growth Management on the Tongass National Forest* (August 2013) (769_05_000692) (Scenario Analysis)

U.S. Department of Agriculture, Office of the Secretary, Secretary's Memorandum 1044-009 Addressing Sustainable Forestry in Southeast Alaska (July 2, 2013) (Secretary Vilsack's Memo) (PR 769_01_000046)

U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Alexander Archipelago Wolf as an Endangered or Threatened Species, 81 Fed. Reg. 435 (Jan. 6, 2016)

U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Response to Court on Significant Portion of the Range, and Evaluation of Distinct Population Segments, for the Queen Charlotte Goshawk (*Accipiter gentilis laingi*), 72 Fed. Reg. 63,123 (Nov. 8, 2007)

U.S. Fish and Wildlife Service, Alaska Region, Juneau Fish and Wildlife Office, Queen Charlotte Goshawk Status Review (Apr. 25, 2007)) (USFWS Goshawk Review) (PR 769_05_000487)

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

U.S. Forest Service, Average Stumpage Values – Old Growth Only, Summary Data (2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2451– Summary-OG-only)

U.S. Forest Service, Average Stumpage Values – Old Growth and Young Growth, Summary Data (2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2457 – Summary-OG&YG)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only): Old Growth and Young Growth (Nov. 1, 2007)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only): Old Growth Only (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2447 – TotalValbyVCU-OGonly)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only): Old Growth Only (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2448 – NICValbyVCU-OGonly)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for Areas with Postive Values within Each VCU (Includes Sawlogs Only) Old Growth and Young Growth (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2449 – PositiveValbyVCU)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for Areas with Postive Values within Each VCU (Includes Sawlogs Only) Old Growth Only (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2454 – PositiveValbyVCU-OGonly)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for All Areas within Each VCU (Includes Sawlogs Only) Old Growth and Young Growth (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2455 – TotalValbyVCU)

U.S. Forest Service, Average Stumpage Values per Acre (based on Spectrum) for NIC I Portions of Each VCU (Includes Sawlogs Only) Old Growth and Young Growth (Nov. 1, 2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2458 – NICValbyVCU)

U.S. Forest Service, Average Stumpage Values, Total Value by VCU, Summary Data (2007) (2008 TLMP AR 603_Spectrum_Files\9_4_ROD\9_4_2_Stumpage 2456– TotalValByVCU-plusSummary-Phase 3)

U.S. Forest Service, *Baseline Estimates of Carbon Stocks in Forests and Harvested Wood Products for National Forest Service Units; Alaska Region* (Mar. 2015) (USFS Baseline Carbon Stocks)

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

U.S. Forest Service, Big Thorne Project, Final Supplemental Information Report, Documentation of Interagency/Interdisciplinary Review (Aug. 2014) (Big Thorne Supplemental Information Report)

U.S. Forest Service, *Briefing Paper: Dramatic Decline of Wolf Population on Prince of Wales Island, Tongass National Forest* (May 29, 2015)

U.S. Forest Service, Final Notes, Science Consultation on Tongass Forest Plan Amendment Young-growth Management in Riparian Teleconference (July 30, 2015) (USFS Final Notes) (769_05_000176)

U.S. Forest Service, Five-Year Review of the 2008 Land and Resource Management Plan: Public Outreach and Comment Analysis Report (Nov. 2013) (PR 769_02_000002)

U.S. Forest Service, Kuiu Timber Sale Area Environmental Impact Statement and Record of Decision Supplemental Information Report (Aug. 2016)

U.S. Forest Service, Land Management Planning Handbook, Chapter 10 – The Assessments (2015)

U.S. Forest Service, Sale and Disposal of National Forest System Timber; Administration of Timber Export and Substitution Restrictions, Final Rule, 60 Fed. Reg. 46,890 (Sept. 8, 1995)

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 National Forest; Alaska; Forest Plan Amendment, Notice of intent to prepare an environmental impact statement, 79 Fed. Reg. 30,074 (May 27, 2014)

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

U.S. Forest Service, Tongass National Forest Land and Resource Management Plan, Interagency Conservation Strategy Review: An Assessment of New Information Since 1997 (Jan. 2008) (PR 769_05_000836)

U.S. Forest Service, Wrangell Island Project Draft Environmental Impact Statement (May 2016) (Wrangell DEIS)

U.S. General Accounting Office, *Forest Service: Amount of Timber Offered, Sold, and Harvested, and Timber Sales Outlays, Fiscal Years 1992 Through 1997, Report to the Chairman, Subcommittee on Department Operations, Oversight, Nutrition, and Forestry, Committee on Agriculture, House of Representatives* (1999)

U.S. General Accounting Office, *Forest Service: Distribution of Timber Sales Receipts, Fiscal Years 1995 Through 1997, Report to the Ranking Minority Member, Committee on Resources, House of Representatives* (1998)

U.S. General Accounting Office, *Forest Service Timber Costs, Linda M. Calhoun Letter to The Honorable Cynthia McKinney and The Honorable George Miller, U.S. House of Representatives* (2001)

U.S. Government Accountability Office, *Tongass National Forest, Forest Service's Actions Related to Its Planned Timber Program Transition* (2016)

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

Wang, H. *et al.*, *Source Profiles of Volatile Organic Compounds from Biomass Burning in Yangtze River Delta, China*, 14 AEROSOL AND AIR QUALITY RESEARCH 818 (2014)

Weckworth, B.V. *et al.*, *A Signal for Independent Coastal and Continental histories among North American wolves*, MOLECULAR ECOLOGY 14: 917-931 (2005) (2008 TLMP AR 603_0879)

Weckworth, B.V. *et al.*, *Genetic distinctiveness of Alexander Archipelago wolves (Canis lupus ligoni): Reply to Cronin et al.* (2015), JOURNAL OF HEREDITY 1-3 (2015)

Weckworth, B.V. *et al.*, *Phylogeography of wolves (Canis lupus) in the Pacific Northwest*, JOURNAL OF MAMMALOGY, 91(2):363-375 (2010) (PR 769_05_000489)

Wilson, E.O. *et al.*, Letter to Secretary Vilsack from 200+ North American Scientists Re: Scientific support for completion of old-growth logging transition on the Tongass rainforest by the end of the Obama Administration (Oct. 15, 2014)