July 27, 2016

Beth Pendleton, Regional Forester
USDA Forest Service
Attn: Tongass Objections
P.O. Box 21628 Juneau, AK 99802-1628

Proposed Amendment to the 2008 Tongass LRMP (June 30, 2016)
Responsible Official: Earl Stewart; Tongass National Forest Supervisor

Objection by: Dominick DellaSala, President and Chief Scientist,
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Dear Regional Forester Pendleton:

Geos Institute is objecting to the Tongass FEIS and draft record of decision as a precursor for keeping our future legal options open. The main context of our objection rests on the decades-in-waiting, long-promised Forest Service transition to second growth forestry that we believe the agency has not responded to quickly enough. Instead, the Forest Service has based its decision on the proposition that a 16-year glide path is *essential* to give: (1) second growth time to grow, and (2) industry time to reconstitute itself for a new product mix. Paradoxically, this needlessly slow transition will disadvantage rather than benefit industry, and result in continued loss of globally significant primary forests and their substantial carbon stores. We have two main objections pertaining to comments we submitted on the DEIS, particularly our comments specific to second-growth forest characteristics and in situ forest carbon and its relation to climate change that you did not adequately address or analyze.

Objection 1: Failure to appropriately analyze Mater second growth data

The Forest Service has ignored credible analysis of the suitability of Tongass second growth timber for economical harvest, milling, and markets. Working with Catherine Mater of Mater, Ltd, and other partners, Geos Institute contracted timber cruises of second growth at heretofore-unprecedented sampling densities (one survey plot per acre compared to Forest Service practice of one plot per 10-15 acres). Analyses of the resulting data demonstrate that existing (*not hypothetical*) tree characteristics, volumes per acre, and accessibility of a substantial acreage of "low litigation risk" second growth are sufficient to realistically transition beginning in 2020, thereby achieving Secretary Vilsack's transition faster

than the Forest Service proposes. The agency has chosen to repeatedly dismiss an earlier version of the Mater findings and has failed to analyze the more recent Mater data we provided on volume, defect, productivity, and age class distributions.

The Forest Service claims that our data analysis did not utilize the updated FPS model. This is incorrect. In fact, analysis of both the June 2015 and September 2015 field inventory data completed by Terre Verde for Mater now complies with recent agency changes in FPS modeling (not available to Terre Verde at the 2015 cruise times). In 2016, Terra Verde conducted two tasks using the updated FS FPS model:rerun 2015 July and September cruise data on a stand by stand basis to ascertain updated merchantable mbf/acre results using updated FPS data; and for 2015 July and September cruised stands with new FPS data, project merchantable volume per acre - 10 years out for 4.5" tops to adapt to HewSaw capability Here are the results that you did not analyze in the FEIS but should have:

July 2015 cruise -- 316 acres; 14 stands; all but one of the stands was aged 50-54 years. Our initial analysis yielded an average of 9.5 mbf/ac in 2015; 22 mbf/ac in 2025 at time of harvest; with a total mbf to be harvested in 2025 off the 316 acres projected at 6.9 mmbf. New FPS model yielded even better results: 10.5 avg mbf/ac in 2015; 23 mbf/ac in 2025 at time of harvest; 7.3 mmbf at time of harvest. We projected in 2025 that 25% of the trees in the cruised stands would produce at least 1.5 log segments (at 32' plus trim), using the FS standard 6" top. And 22% would produce 2 or more log segments. However, using a 4.5" top to adapt to HewSaw capability, 72% of trees will produce 1.5 log segments; 42% will produce 2 or more log segments.

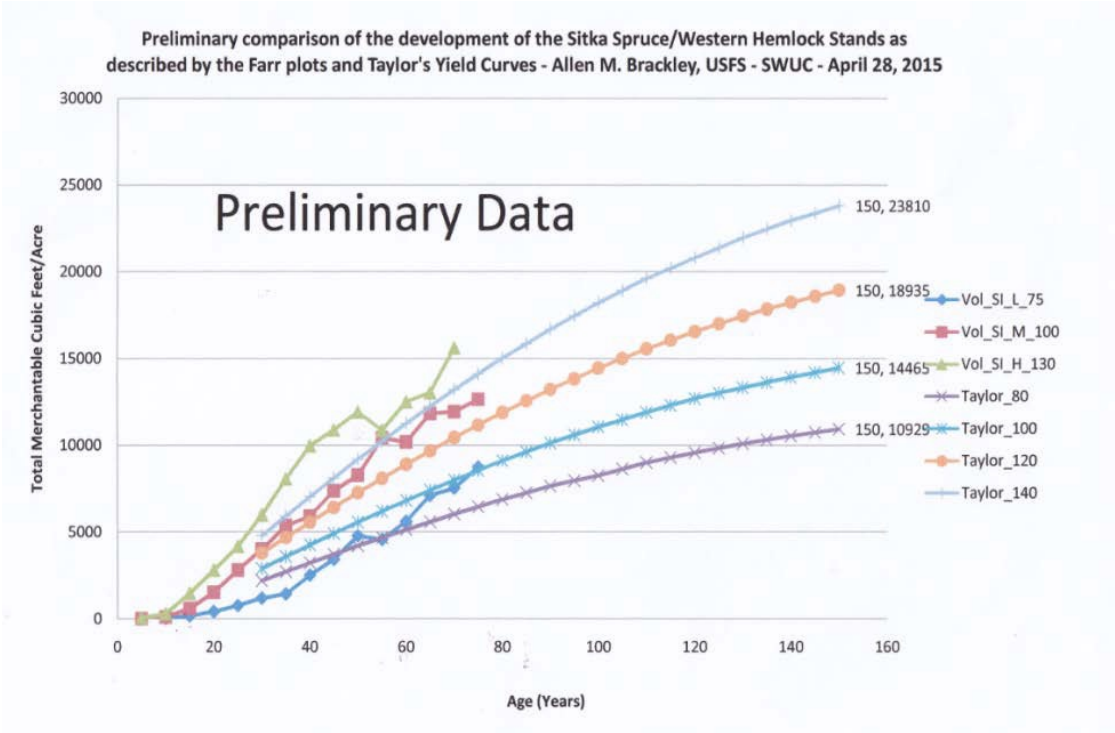
	Original Mater merchantable volume			Merchantable volume using updated FPS		
	mbf/ac in 2015	mbf/ac (at harvest)	Total mbf (at harvest)	mbf/ac in 2015	mbf/ac (at harvest)	Total mbf (at harvest)
July 2015 cruise *(316 acres)*	9.5	*(2025)* 22	*(2025)* 6,952	10.5	*(2025)* 23	*(2025)* 7,268
Sept. 2015 cruise *(572 acres)*	7.3	*(2030)* 26	*(2030)* 14,872	7.6	*(2030)* 27.5	*(2030)* 15,730

September 2015 cruise -- 572 acres; 16 stands; two-thirds of stands aged 45-49 yrs; 1/3 of stands aged 40-44 yrs. Assumed stand harvest deferred until 2030 - in our modeling. Our original resulting yield in 2030 for these 572 acres demonstrated 7.3 avg mbf/ac in 2015; 26 mbf/ac in 2030 at time of harvest; with a total mbf to be harvested in 2030 from just these 572 acres projected at 14.8 mmbf. New FPS model results indicated: 7.6 avg mbf/ac in 2015; 27.5 mbf/ac in 2030 at time of harvest; with a total mbf harvested in 2030 projected at 15.7 mmbf. Thus, the results of applying the new FPS model actually yielded nominal *increases*. Mater's analysis is of a character and quality that the Forest Service itself should have undertaken to support decision making for the TLMP amendment. Mater has generously

supplied the Forest Service all her results free of charge. Her analysis products have been routinely ignored, discounted, and disputed by the agency.

Even more troubling, the agency's own PNW Research data related to growth and size characteristics of Tongass second growth in thinned and un-thinned stands has either been ignored or kept from consideration. In the 1920's, 12 "Taylor" research plots were established in un-thinned second growth stands to record growth and yield. In 1977, 68 "Farr" plots were established in thinned second growth stands (with un-thinned control plots) to record growth and yield. Forest Service Farr plot data for pre-commercially thinned (PCT) stands (Dr. Allen Brackley, PNW Sitka Wood Utilization Research Center, and Dr. Mike McClellan, FS PNW -- presented April 28, 2015 at Region 10 silviculture workshop) demonstrate volumes substantially exceeding Taylor growth and yield curves for un-thinned stands. Updated FPS modeling only uses Taylor growth and yield curves for analysis on second growth, ignoring the more relevant Farr data particularly associated with volume recovery from PCT stands.

Farr plot merchantable volume per acre in 55-year old medium thinned PCT stands with site index 100 reaches 10,000 cu ft/ac, compared to Taylor projections in same site index for un-thinned stands of 4,900 cu ft/ac. (see chart below). The agency summarily rejected our analysis results as being "optimistic," but chose to ignore preliminary scientific data they have produced and presented in their own technical training workshops that support our analysis results. To be conservative, Mater's primary analysis assumed all targeted second growth acres (PCT and un-thinned) that were projected to be harvested would generate very conservative "Taylor" volumes. A secondary analysis using "Farr" volumes was also completed and reported. The agency's choice to ignore its own 2015 Farr plot data clouds its rationale and profoundly skews the decision outcome. Reconsideration is essential.



The Draft ROD summarizes the reasons why a more rapid transition is purportedly unattainable (p 10-11). We have previously refuted the agency's flawed rationale, and now reiterate key points ignored again in the FEIS.

In order to capture favorable economics for smaller trees it is important to minimize costs and maximize revenue. Economical regeneration harvesting of second growth can be realized by selecting the most productive, highest volume stands adjacent to open roads. Mater's analysis has already identified and mapped at least 125,000[1] acres of such stands that can yield volumes sufficient to satisfy the agency's projected demand within 5 years, and, in the long run, far exceed demand. None of this was included in the FEIS.

To effectively utilize smaller trees, industry can adjust and retool with currently available milling technology to improve efficiency and dramatically increase lumber scale yield (e.g. HewSaw). The Forest Service has evaluated the possibility of transition while looking backward not

[1]There are approximately 125,625 acres of low controversy, near open or ready-to-open roads ("roaded") PCT and non-PCT in 5 POW ranger districts. We included another 13,448 acres of PCT from Sitka and Juneau RDs bringing the total to 139,073 acres of suitable areas. For Sitka and Juneau, since we still lack GIS and cruise data from these RDs, we used Tongass Futures Rountable data that defined suitable, roaded PCT acres in these two RDs as 45% of all suitable acres (29,886 acres). Our numbers do not include any non-PCT acres from Sitka and Juneau, although in reality there will be some and therefore are more than adequate to meet Forest Service timber targets.

forward, making two critical errors in judgment: (1) basing a consideration of the viability of second growth products on existing logging practices and milling technology and capacity, and (2) vastly overestimating the cost of industry transition.

As we presented in our comments, it is estimated that a mill like Viking can install HewSaw technology at a cost of $3-5 million within their existing production line and be operational within a year after initial technology purchase. Government agencies have many means at their disposal to enable a successful technology upgrade. Secretary Vilsack stated in his 2010 transition comments the need to bring the combined resources to bear on this problem. Clearly, you have not.

Instead, the Forest Service continues to describe cost and time parameters of $50-70 million and many years. For an agency directed to act with a sense of urgency, these are deeply flawed transition assumptions.

By persisting in cutting primary forests, the agency is focusing on an inherently uncertain, high-risk, and costly supply due to the high timber sale preparation costs for old growth and the certainty of continued litigation. This, coupled with an unnecessarily lengthy transition period that militates against near-term industry actions and investments to accommodate smaller wood, actually serves to harm the very industry you seek to protect. Alaska's timber industry does not need a supply of additional old growth wood. It simply needs *wood*.

Industry interests are best served by availing them of a currently abundant supply of second growth timber that can be prepared for sale at least cost with little risk of litigation, is easily accessible by open roads, has superb characteristics in terms of diameter and height, volumes per acre, and low defect. ***IF*** local mills are modernized with inexpensive, currently available technology to accommodate this material, the multiple benefits of a transition can be quickly realized.

We give the Forest Service some credit for a plan to eventually halt unnecessary logging of primary forest. But the plodding transition comes on the heels of many decades of logging that served timber industry interests at the expense of old-growth rainforest. It should be noted that Secretary Vilsack's July 3, 2013 memorandum urgently sought a transition in 10-15 years, while requiring evaluation of scenarios that "effectuate a more rapid transition," meaning **no later than 2028**. It is now 2016, and the clock has been ticking for three years. Implausibly, the agency has behaved as if the 10-15 year period was a minimum time frame rather than a goal to be improved upon if at all possible. There was never a serious effort mounted to achieve even the 10-year timeframe of 2023. As it stands, the draft decision is **non-compliant** with Secretary Vilsack's direction to transition by 2028 at the latest and the contemplated 16-year transition should be adjusted downward especially based on the recent evidence we provided to you and that you have not analyzed. Additionally, the Tongass Advisory Committee specifically called for a five-year hard stop on old-growth sale decisions, but the Forest Service ignored this critical transition timeline in its preferred alternative.

The Forest Service also did not adequately analyze our proposal and its supporting analytical framework. It is far more prudent and beneficial to all parties to pursue a more rapid transition. Only if there are contingencies that might keep the agency from completing the rapid transition that is in everyone's interest, should you adopt a ROD to adjust the fast transition if specific, defined problems arise during implementation. This approach is much more consistent with the TAC recommendation that decisions (Gate 2) on all old-growth sales be completed within 5 years.

Objection 2: Failure to properly analyze the climate implications of Tongass logging

The increasing gravity of climate change threats, especially in Alaska where impacts are currently most severe, coupled with the stupendous carbon stores in Tongass primary forests, necessitate careful analysis and weighing management consequences to carbon as a key *decision criterion*. The agency provided only a cursory evaluation of carbon rather than the "hard look" required by NEPA. The agency chose to ignore CEQ's draft guidelines for project related emissions and for determining the social cost of carbon citing uncertainties as a justification for inaction.

The Tongass National Forest contains vastly more carbon stores than any other national forest, even though much has been lost to logging over the past 60 years. The failure to properly analyze and characterize the global asset value of Tongass carbon stores by quantifying (economically and socially) what's already been lost, and is projected to be lost over the next 16 years, is irresponsible for an agency entrusted with such a profound stewardship obligation. This error is then compounded by not evaluating carbon impacts as a critical decision criterion. The precedent of our leading forest management agency virtually ignoring the carbon issue while committing to (at least) another 16 years of continued old growth liquidation is again irresponsible to say the least. The agency failed to consider the potentially globally significant implications of the U.S. setting an example of continued old growth logging for 16 more years and failing to make a commitment to end even then this type of global warming pollution, including the social cost of carbon.

Proper consideration of carbon impacts and climate change factors should lead to, as Vilsack's memorandum directs, a more ambitious speeding of the transition. This Tongass amendment presents the agency a tremendous opportunity to build on the administration's efforts to utilize existing forest carbon stores to combat climate change. A faster transition makes sense ecologically and economically.

In summary, a shorter transition of about 5 years is practical and achievable while avoiding profound environmental consequences, as well as benefitting both industry and the agency both in the short and long run. It not only meets, but also exceeds Vilsack's expectations. It also gives evidence of an agency leading resolutely toward a more hopeful future. The failure to undertake a detailed analysis of the Conservation Alternative, given our DEIS comments and above

objections, is a procedural gaffe that could have been easily addressed in the FEIS if the agency were truly committed to a rapid transition, which it clearly is not.

As it stands, the agency has not analyzed a reasonable range of alternatives, and has not taken a hard look at credible information bearing on your decision. You have exceeded the 10-15 year (at most) time frame specified by Secretary Vilsack to complete a transition. The EIS confined alternatives to only those that meet or exceed an estimated 46 million board foot annual volume, a projection based on a speculative model that far exceeds recent harvest levels. Meeting this timber demand level was not even cited in the agency's purpose and need (see Scoping Notice). Credible information about Tongass second growth timber resources has been discounted and ignored, even though these young forests provide a realistic means of swiftly attaining Secretary Vilsack's transition goals while avoiding needless liquidation of vast areas of carbon rich, fish and wildlife abundant, old-growth rainforest.

Importantly, the ecosystem services provided by vast Tongass carbon stores – perhaps the most valuable asset of the Tongass – have been virtually ignored in spite of the global climate change crisis and the President's climate change global and national leadership.

In closing, Geos Institute and our partners are requesting a meeting to discuss these ROD deficiencies pursuant to 36 CFR 219.57.

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Chief Scientist