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Alaska Roadless Rule
USDA Forest Service, Alaska Region
P.O. Box 21628
Juneau, AK 99802-1628
Submitted electronically at https://www.fs.usda.gov/project/?project=54511

Re: 36 CFR Part 294, Special Areas; Roadless Area Conservation; National Forest System Lands in Alaska

In coordination with the Alaska Departments of Natural Resources (DNR), Environmental Conservation (DEC), Fish and Game (ADF&G), Transportation and Public Facilities (DOT&PF), and Commerce, Community and Economic Development (DCCED), and on behalf of the State of Alaska (State), the Office of Project Management and Permitting (OPMP) submits the following consolidated comments in response to the U.S. Department of Agriculture (USDA), Forest Service's Notice of Proposed Rulemaking (Federal Register Vol. 84, No. 201, p. 55522-55529) and Draft Environmental Impact Statement (DEIS) for the proposed Alaska Roadless Rule. Please consider the following comments from the State as the petitioner, a cooperating agency, and a state government during preparation of the Final Environmental Impact Statement (FEIS), Record of Decision (ROD), and Final Rule.

The State supports a full exemption for the Tongass National Forest (Tongass) from the 2001 Roadless Area Conservation Rule (Roadless Rule), as it (1) addresses the critical socioeconomic needs of Alaskans and Southeast Alaska communities; (2) is the most responsive action alternative to the State's petition for rulemaking; (3) provides the USDA, Forest Service the greatest flexibility for managing the Tongass to achieve multiple-use, sustained yield objectives; and (4) is consistent with Congressional directives.

Summary of Proposed Alaska Roadless Rule

The USDA is proposing to exempt the Tongass from the 2001 Roadless Rule, which prohibits tree harvest and road construction/reconstruction within inventoried roadless areas (IRAs) with certain limited exceptions. In addition, the proposed rule would provide an administrative procedure for correcting and modifying inventoried roadless area boundaries in the Chugach National Forest (Chugach).

Summary of Alternatives

The DEIS, prepared under the National Environmental Policy Act (NEPA), analyzes six alternatives related to managing roadless areas in the Tongass. The alternatives range from no action to fully exempting the Tongass from application of the 2001 Roadless Rule. The USDA has identified Alternative 6 (full exemption) as the preferred alternative in the DEIS. The full range of alternatives considered are summarized below:

- Alternative 1 takes no action and would continue to apply the 2001 Roadless Rule to 9.2 million acres of the Tongass.

- Alternative 2 removes approximately 113,000 acres from roadless designation that have been substantially altered (e.g. "roaded roadless" areas), allocates about 9.22 million acres of the Tongass across three Alaska Roadless Area (ARA) Priorities (Land Use Designation (LUD) II, Watershed, and Roadless), and converts 18,000 old-growth acres and 10,000 young-growth acres previously identified as unsuitable timber lands to suitable timber lands.
- Alternative 3 proposes a net decrease of about 1.1 million acres from roadless designation. The majority of those (826,000) acres will continue to be managed for their wildland and roadless characteristics as congressionally designated LUD II areas. The remaining acres removed from roadless designation include roughly 212,000 acres comprised of substantially altered areas and their logical operational extensions. Alternative 3 allocates about 8.1 million acres of the Tongass across three ARA Priorities (Watershed, Roadless and Community) and would convert 76,000 old-growth acres and 14,000 young-growth acres previously identified as unsuitable timber lands to suitable timber lands.
- Alternative 4 proposes a net decrease of about 343,000 acres from roadless designation comprised of substantially altered areas, their logical operational extensions, and selected additional locations for economic timber sales. Alternative 4 allocates about 8.86 million acres of the Tongass to three ARA Priorities (LUD II, Roadless, and Timber). The 749,000 acres allocated to the Timber Priority ARA category would allow for timber to be cut, sold, or removed and construction, reconstruction, or maintenance of permanent or temporary roads[1]. Alternative 4 converts roughly 158,000 old-growth acres and 15,000 young-growth acres previously identified as unsuitable timber lands to suitable timber lands.
- Alternative 5 would remove all Timber Development, Modified Landscape, and Scenic Viewshed LUDs identified by the 2016 Tongass Land and Resource Management Plan (Forest Plan) from roadless designation and convert 165,000 old-growth acres and 17,000 young-growth acres previously identified as unsuitable timber lands to suitable timberlands. Areas with mineral potential, as identified by the 2016 Forest Plan's minerals overlay, are also removed from roadless designation under this alternative.
- Alternative 6 is the Preferred Alternative and would exempt the Tongass from the 2001 Roadless Rule. This alternative proposes to remove roadless designations on all 9.2 million acres of IRAs in the Tongass. Alternative 6 converts a net total of 165,000 old-growth acres and 20,000 young-growth acres previously identified as unsuitable timber lands to suitable timber lands and includes an administrative correction and modification provision that would only apply to the Chugach. Importantly, existing Congressional directives and the 2016 Forest Plan would continue to govern activities in the Tongass.

General Comments

The 2001 Roadless Rule remains a national, one-size-fits-all regulation that inappropriately, and unlawfully, limits opportunities for Alaskans that live and work in the Tongass. As such, the State, along with Alaska's Congressional Delegation, has worked tirelessly over the consecutive terms of six governors (Democratic, Independent, and Republican) to exempt the Tongass from the Roadless Rule.

In January 2018, the State petitioned USDA Secretary Sonny Perdue for rulemaking to exempt the Tongass from the Roadless Rule in the interest of the socioeconomic well-being of its residents. Following acceptance of the State's petition, the State and the USDA entered a Memorandum of Understanding (MOU), in which the State agreed to assist the USDA, as a cooperating agency, in

[1] The 749,000 acres allocated to Timber Priority ARA are designated for development (e.g. Timber Production, Modified Landscape, or Scenic Viewshed) under provisions of the 2016 Forest Plan.

developing an Environmental Impact Statement (EIS) in accordance with NEPA. Through Alaska Administrative Order 299, the State established the Alaska Roadless Rule Citizen Advisory Committee (Committee) to provide an opportunity for Southeast Alaskans to advise the State on the future management of IRAs in the Tongass. The Committee was charged with providing recommendations to assist the State in fulfilling its role as a cooperating agency under the MOU.

Following review of the DEIS and consideration of the Committee's input, the State continues to support fully exempting the Tongass from the 2001 Roadless Rule, as described in the Preferred Alternative (Alternative 6) of the DEIS. The Preferred Alternative is the most responsive action alternative to the State's petition and would allow the UDSA, Forest Service the greatest flexibility to implement management decisions at the forest and regional levels, consistent with multiple-use and sustained yield principles, to address the unique challenges faced by the communities, residents, and industries that rely on the Tongass; consistent with Congressional directives.

The Tongass is unique

At nearly 17 million acres, the Tongass is the largest forest in the National Forest System - covering an area larger than West Virginia and one of the world's most important intact ecosystems. Thirty-two communities are located within the forest boundaries, with roughly 72,000 residents. The Tongass is home to the Tlingit, Haida and Tsimshian peoples, who have lived in Southeast Alaska since time immemorial. The Tongass is also known as the "salmon forest", and it is a source of great pride and passion for Alaskans.

The U.S. Forest Service is governed by numerous federal laws including the Organic Administration Act, the Multiple-Use Sustained-Yield Act, and the National Forest Management Act. Three Alaska-specific federal laws significantly affect management of the Tongass: the Alaska National Interest Lands Conservation Act (ANILCA), the Tongass Timber Reform Act (TTRA), and the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (FFY 2015 Defense Authorization Act). In 1980, Congress passed ANILCA, which established more than 100 million acres of federal land across Alaska as new or expanded Conservation System Units (CSUs), including 14 Wilderness Areas and two National Monuments in the Tongass. Through ANILCA, Congress balanced the unprecedented scale of these designations with similarly unprecedented accommodations for Alaskans' way of life and reliance on a resource-based economy. Section 101(d) of ANILCA succinctly captures the intent of Congress to provide "sufficient protection for the national interest in the scenic, natural, cultural and environmental values on the public lands in Alaska, and at the same time [provide] adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people." Congress included key provisions intended to ensure the balance established for Alaska in ANILCA could only be modified by a future act of Congress.[2] While Congress has amended ANILCA

[2] *ANILCA SEC. 1326. (a) No future executive branch action which withdraws more than five thousand acres, in the aggregate, of public lands within the State of Alaska shall be effective except by compliance with this subsection. To the extent authorized by existing law, the President or the Secretary may withdraw public lands in the State of Alaska exceeding five thousand acres in the aggregate, which withdrawal shall not become effective until notice is provided in the Federal Register and to both Houses of Congress.* ***Such withdrawal shall terminate unless Congress passes a joint resolution of approval within one year after the notice of such withdrawal has been submitted to Congress.*** [Emphasis added]

(b) No further studies of Federal lands in the State of Alaska for the single purpose of considering the establishment of a conservation system unit, national recreation area, national conservation areas or

numerous times through the TTRA and other subsequent legislation, the letter and intent of those key provisions remain intact.

Through ANILCA, Congress also provided direction to assure the timber industry in Southeast Alaska would continue to provide economic benefit to local communities. Specifically, ANILCA Section 705 required annual funding be made available to the Secretary of Agriculture to maintain a defined level of timber supply from the Tongass to support the dependent industry. In 1990, the TTRA amended ANILCA Section 705 to require the Secretary "seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle", to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources. The TTRA also prohibited timber harvest within 100 feet of fish streams and established six additional Wilderness Areas and 12 LUD II areas, which are managed in a roadless state to retain their wildland character. The FFY 2015 Defense Authorization Act finalized the outstanding Alaska Native Claims Settlement Act land entitlements of Sealaska Regional Native Corporation and established eight additional LUD II areas in the Tongass. The congressionally designated Wilderness and LUD II areas established and expanded through these laws protect the wilderness and roadless character of 6.8 million acres of the Tongass. These statutory protections, along with the 2016 Forest Plan management prescriptions, provide the balance sought by Congress and allow for multiple use, sustained yield management to occur on the Tongass. Application of the 2001 Roadless Rule, an administrative action, conflicts with and unnecessarily complicates the management regime established by Congress for the Tongass; it has stifled forest-level decision making processes; and it has significantly impacted the timber, mining, electric utility, and transportation sectors in the region by limiting access in and through remote areas of the Tongass and increasing uncertainty, cost, and delay in the permitting processes. Resulting job losses, increased costs, and deferment of critical infrastructure projects have, in turn, negatively impacted Southeast Alaska communities.

Socioeconomics impacts of the Roadless Rule

The 2001 Roadless Rule significantly and disproportionately impacts the Southeast Alaska timber industry and rural communities. Through the 1990s, an average annual harvest of nearly 250 million board feet (MMBF) of timber was supplied from the Tongass, supporting over 3,500 fulltime jobs, which supported families, schools, and local businesses. Today, less than 350 timber industry jobs remain[3].

The 2001 Roadless Rule FEIS projected up to 895 jobs and up to $38.7 million in personal income would be lost following application of the 2001 Roadless Rule in the Tongass[4]. Equally concerning, annual school enrollment has decreased by 3,400 students (23%) in the region since 1997.[5]. Edna Bay, Elfin Cove, Hyder, Kasaan, Meyers Creek, and Whale Pass have each seen school closures since 1990, with all but one of these closures occurring since 2000. Schools in Edna Bay, Hyder, Kasaan, and

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for related or similar purposes shall be conducted ***unless authorized by this Act or further Act of Congress.*** [Emphasis added]

ANILCA SEC. 708. (b)(4) ***unless expressly authorized by Congress*** *the Department of Agriculture shall not conduct any further statewide roadless area review and evaluation of National Forest System lands in the State of Alaska for the purpose of determining their suitability for inclusion in the National Wilderness Preservation System.* [Emphasis added]

[3] Southeast Conference, *Southeast Alaska by the Numbers 2019*, p. 12
[4] 2001 Roadless Rule FEIS, p. 3-380
[5] DEIS, p. 3-23

Whale Pass reopened by the 2014 school year.[6,7] However, since that time schools have closed in Edna Bay (2015), Craig (2015), Port Protection (2017), and Tenakee Springs (2017). [8] Greater connectivity among Southeast communities will contribute positively to community sustainability, but the 2001 Roadless Rule presents significant barriers to connecting communities in Southeast Alaska.

Electric utility and transportation sectors have also faced significant challenges from the 2001 Roadless Rule, affecting important infrastructure projects that would connect communities through transmission lines, roads, and shorter ferry routes.

Although mining industry jobs have increased steadily over the last decade due to the continued success of the Greens Creek Mine and operations starting at the Kensington Mine in 2010, surface access to mineral claims in inventoried roadless areas have been limited by the 2001 Roadless Rule, which has impacted the timing, scope and scale of mineral exploration in Southeast Alaska.

Rather than acknowledging and evaluating the difficulties faced by applicants to secure approvals for roadbuilding or tree cutting activities in IRAs of the Tongass, the USDA has predominately dismissed the issue and instead highlighted 57 Alaska projects approved in IRAs.[9] A closer evaluation by the State of these approvals revealed concerns that the information being provided to the public is misleading. The 38 mining projects noted by the USDA in their Frequently Asked Questions (FAQ) document are not individual projects, as implied. The 33 approvals for mineral activities in Tongass IRAs were issued to eight (8) individual project applicants over multiple years for continued mineral exploration. None of the 33 approvals for mineral exploration authorized road building, and instead required applicants to rely on helicopters to support operations.

The ROD for the Kake to Petersburg Intertie Project states "[t]he alternatives as initially proposed all included construction of a pioneer road along those sections of the proposed transmission line that do not follow existing roads, including locations within IRAs. The alternatives were modified during the alternative development process and pioneer roads are no longer proposed under any of the action alternatives, including the Selected Alternative."[10]

Another example of misleading information highlighted by USDA in their FAQ document is "the issuance of a road easement to the State of Alaska", which relates to the Katlian Bay Road Project proposed by the DOT&PF. However, the "land allocated for the Katlian Bay Road was through a Federal-State land exchange that included a transportation and utility easement for the Katlian Bay Road project corridor (PL-109-59; SAFETEALU Section 4407, D-1 Easement).[11] The Section 4407 easement granted by Congress under Public Law 109-59 ensured that the Katlian Bay Road would be approved despite the regulatory prohibitions to roadbuilding found in the 2001 Roadless Rule.

In addition to the barriers the 2001 Roadless Rule presents potential developers and investors, IRAs have also become important to outfitters and guides, small cruise vessels, and other visitor industry

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[6] 2016 Forest Plan, FEIS, p. 3-542

[7] Data compiled by Department of Commerce, Community and Economic Development (12/12/19) from Department of Education and Early Development (FY1999-FY2019 School Closures; updated 10/1/19)

[8] Data compiled by Department of Commerce, Community and Economic Development (12/12/19) from Department of Education and Early Development (FY1999-FY2019 School Closures; updated 10/1/19)

[9] USDA (September 2018), Frequently Asked Questions Regarding Inventoried Roadless Areas. Available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd595403.pdf

[10] USDA, Forest Service (November 2016), Final Record of Decision, Kake to Petersburg Transmission Line Intertie Project, Tongass National Forest. Available at https://www.fs.usda.gov/nfs/11558/www/nepa/66847_FSPLT3_3908226.pdf

[11] ADOT&PF (January 2018). Katlian Bay Road Project Environmental Document. Available at http://dot.alaska.gov/sereg/projects/sitka_katlianbayroad/assets/Katlian_EA.pdf

stakeholders due to their relative accessibility compared to the restrictive management of statutorily designated wilderness areas in the Tongass. This increased reliance by visitor industry users of IRAs has created public expectations that may not align with management directions of the 2016 Forest Plan for the development land base. The State believes these competing uses can be effectively managed through forest and regional-level decision making processes under the 2016 Forest Plan, but not under the rigid 2001 Roadless Rule prohibitions. For example, roads and visitor-related facilities in the Remote Recreation and other non-development LUDs could provide for greater distribution of recreational uses in areas of the Tongass that may provide experiences similar to those one could expect in statutory wilderness areas, while at the same time not competing with timber production and other commercial uses that are restricted to an extremely limited portion of the Tongass. Unfortunately, such an approach is not possible while the command and control prohibitions with limited exceptions under the 2001 Roadless Rule are applied to the Tongass.

The socioeconomic impacts of the 2001 Roadless Rule are disproportionally significant and create challenges that cannot be adequately addressed locally or regionally through project or forest-level planning. The State supports the growth experienced in the visitor (2,133 jobs added)[12] and mining (353 jobs added) [13] sectors in the Southeast Alaska region between 2010 and 2018. However, rural communities have borne the costs from a national policy that should never have been applied to the Tongass. Success of Southeast Alaska communities depends on a diversified regional economy. Connectivity – whether by roads or utilities – is a critical component of sustainability. Through a combination of statutory and management plan protections, the Tongass can effectively manage for environmental, social, and economic outputs that contribute to the overall wellbeing of Southeast Alaska and the Nation.

In summary, the 2001 Roadless Rule projected a loss of 895 jobs in Southeast Alaska. Instead, the region has lost over 3,000 jobs in just one economic sector. Since 2010, two sectors (notable bright spots in the Southeast economy) added just under 2,500 jobs but were likely greatly inhibited by the bureaucratic hurdles imposed on the Tongass. A decrease of 23% of K-12 students is directly related to the timber sector's job losses. The 2001 Roadless Rule has placed such a burden on the region that few economic sectors have grown sufficiently, even over decades, to ensure a vibrant future for the Southeast region of Alaska.

Transportation and Utility Infrastructure

Congress recognized Alaska's lack of roads and infrastructure in Title XI of ANILCA and established a process to ensure proposed transportation and utility projects that affect CSUs would be fairly considered and not summarily dismissed by federal land management agencies otherwise tasked with protecting CSUs, including designated Wilderness.

FINDINGS

> *ANILCA SEC. 1101. Congress finds that - (a)* ***Alaska's transportation and utility network is largely undeveloped and the future needs for transportation and utility systems in Alaska would best be identified and provided for through an orderly, continuous decision-making process*** *involving the State and Federal Governments and the public;…*[Emphasis added]

Ironically, this assurance does not apply to IRAs in Alaska because they are not congressionally designated CSUs. This conundrum of an administratively designated area having greater restrictions than a congressionally designated area is also found in the administratively designated "eligible" Wild,

[12] Comparison of Southeast by the Numbers 2013 and 2019; published for Southeast Conference by Rain Coast Data.
[13] Comparison of Southeast by the Numbers 2013 and 2019; published for Southeast Conference by Rain Coast Data.

Scenic, and Recreational Rivers LUDs and areas that have been found suitable and recommended for Wilderness designation, which are all managed under the 2016 Forest Plan as if they are CSUs with development restrictions but no Title XI process for development approval. Additionally, the limited exceptions included in the 2001 Roadless Rule[14] are much narrower than the decision criteria identified by Congress in the ANILCA Title XI process[15]. As a result, the 2001 Roadless Rule circumvents the clear congressional intent in ANILCA to allow the State and local communities to develop needed roads and infrastructure.

The 2003 Tongass Exemption Rule

In a 2003 ROD, the USDA promulgated a regulation (Tongass Exemption) exempting the Tongass from the 2001 Roadless Rule, in which the USDA provided in-depth analysis of the requirements and limitations of TTRA and ANILCA if the Roadless Rule were applied to the Tongass. After thorough statutory analysis, the USDA concluded that the best way to implement the spirit and the letter of these laws was to exempt the Tongass from the 2001 Roadless Rule. Furthermore, the USDA concluded that exempting the Tongass was not only consistent with the intent of Congress but was also sound management, because roadless values in the Tongass are adequately protected without the additional restrictions included in the 2001 Roadless Rule. The USDA stated that roadless areas are common, not rare, in the Tongass, and the vast majority of the more than nine million acres of IRAs have restrictions on road building and timber harvest, irrespective of the 2001 Roadless Rule[16].

In the 2003 decision to exempt the Tongass, the USDA weighed the value of imposing unnecessary additional restrictions against the very significant social and economic costs to Southeast Alaska that were disclosed in the 2001 Roadless Rule decisional documents. Upon considering these facts, the USDA concluded in the 2003 Tongass Exemption that the needs of the people of Alaska outweighed adding more restrictions when IRAs in the Tongass are adequately protected without the 2001 Roadless Rule.

After the Tongass Exemption was challenged in 2009, the USDA aggressively defended the rule in its 2010 opening brief before the Federal District Court for the District of Alaska. The USDA argued that "the Tongass Exemption was a well-reasoned decision, supported by the evidence" and that after reconsidering the same economic, social and environmental factors considered in the 2001 ROD, the USDA concluded that "the roadless values on the Tongass could be protected and social and economic impacts minimized by exempting the Tongass from the Roadless Rule."[17]

The District Court nevertheless invalidated the Tongass Exemption, but upon appeal, a three-judge panel of the Ninth Circuit Court of Appeals reversed and upheld the Tongass Exemption. However, in a 6-5 *en banc* decision, the Ninth Circuit struck down the Tongass Exemption on a procedural ruling, holding that the USDA failed to adequately explain its change of position from the 2001 Roadless Rule to the 2003 Tongass Exemption. The Court did not find any substantive legal infirmities with the Tongass Exemption, that is, the Court did not hold that the USDA analysis or rationale could not support exempting the Tongass, nor that the USDA reached the wrong decision, but only that the USDA failed to provide an adequate explanation of its change of position from 2001 to 2003. No judge questioned the

[14] 36 CFR 294.12(b)
[15] Section 1104(g)(2)
[16] Final Rule and Record of Decision, Federal Register Vol. 68, No. 249, December 30, 2003, p. 75136-75146
[17] Federal Defendants' Brief in Opposition to Plaintiffs' Motion for Summary Judgement and in Support of Defendants' Cross-Motion for Summary Judgement, Case No. 1:09-cv-00023-JWS

fact that the USDA had a right to change position on exempting the Tongass, if the change was adequately explained.

Given that the No Action" alternative (Alternative 1) in this rulemaking was judicially reinstated and not the product of a new decision by the USDA, the State recommends the USDA analyze, and adequality explain in the FEIS and ROD, the degree to which the Proposed/Selected Alternative differs from the last position taken by the USDA under the 2003 Tongass Exemption Rule. The State further recommends that the USDA adequately explain its change in position from the 2001 Roadless Rule to the Final Rule promulgated by this rulemaking.

The State supports and appreciates that the USDA is once again reviewing application of the 2001 Roadless Rule and proposing to fully exempt the Tongass. The USDA's reasoning to exempt the Tongass in 2003, as well as the USDA's arguments defending its decision, remains valid today and should be made part of the administrative record for this rulemaking to inform the Responsible Official's consideration of the Proposed Alaska Roadless Rule and the Preferred Alternative described in the DEIS. A recent unanimous ruling by the United States Supreme Court in *Sturgeon v. Frost*[18] repeatedly reminded the federal government that Alaska is unique, and should be "the exception, not the rule." The same holds true for the 2001 Roadless Rule and its application to the Tongass.

Comments Specific to the Draft Environmental Impact Statement

Purpose and Need

Without explanation, the stated purpose and need in the DEIS omits the following language from the initial purpose and need statement published in the Notice of Intent (NOI)[19] for this rulemaking:

> *The State of Alaska believes that roadless conservation interests for the Tongass National Forest can be adequately protected under the Tongass Land Management Plan and that the 2001 Roadless Rule prohibitions are unnecessary. In addition, the State believes application of the 2001 Roadless Rule substantially impacts the social and economic fabric of southeast Alaska and violates ANILCA and TTRA.*
>
> *In response to the State's petition, commercial and non-profit organizations have expressed strong opinions, for and against, the idea of a regulatory review.*

The omitted language provides important context to the purpose and need for rulemaking, particularly with respect to the role of the 2016 Forest Plan in managing those portions of the Tongass where roadless designations would be removed under Alternatives 2, 3, 4, 5, and 6 and the need to comply with ANILCA and TTRA.

Procedurally, the USDA's decision to truncate the purpose and need statement between the NOI and the DEIS appears arbitrary due to the lack of any explanation and may affect applicability of the Preferred Alternative due to the change in scope. The State requests that the complete purpose and need statement published in the NOI for this rulemaking be restated in the FEIS.

Background

The State disagrees with the statement "[t]he Forest Service and the State of Alaska believe that the proposed action represents a unique opportunity to collaboratively resolve and provide certainty to the roadless issue in the State of Alaska."[20] The proposed rulemaking does not provide statewide relief from the 2001 Roadless Rule, and the State believes that the provisions in the proposed rulemaking that

[18] 139 S. Ct. 1066 (2019)
[19] Federal Register Vol. 83, No. 169, p. 44252-44253
[20] DEIS, p. 1-1 and ES-2

would apply to the Chugach are outside the scope of the purpose and need (see next section for details). The State requests that the USDA revise this statement in the FEIS to read "the Forest Service and the State of Alaska believe that the proposed action represents one opportunity to collaboratively address and provide certainty to roadless issues in the Tongass."

Proposed Alaska Roadless Boundary Correction and Modification Provisions

Alternatives 2, 3, 4, and 5 include administrative correction and modification provisions for inclusion in the proposed Alaska Roadless Rule to provide for future boundary and classification changes. This provision would apply to both the Tongass and the Chugach. This same provision is included in Alternative 6, but only for the Chugach. [21]

The DEIS purpose and need statement is limited to the Tongass. Therefore, the proposed provision for future boundary and classification changes on the Chugach does not adequately respond to the purpose of or need for action. The State recommends that the USDA remove this proposed provision from application to the Chugach under the Alaska Roadless Rule and propose it through separate rulemaking as a revision to the 2001 Roadless Rule, as the need for making administrative corrections and modifications for future boundary and classification changes to IRAs is not limited to any individual national forest or state.

If promulgated under any rulemaking, a definition for the terms "minor boundary change" and "minor administrative corrections" should be included.

2016 Tongass Land and Resource Management Plan

Approximately 55% of the forested land in the Tongass (approximately 5.5 million acres) is classified as productive forest land; these lands are considered biologically capable of producing industrial wood products. Approximately 500,000 acres of the productive forest lands on the Tongass have been converted to young-growth forest due to harvest or other disturbances such as fire or wind. This equates to approximately three percent of the total Tongass land base and nine percent of the productive forest lands and represents approximately 15 billion board feet of harvested timber[22]. However, only half of the total young-growth forest is available for harvest under the 2016 Forest Plan, as the remainder of the young-growth forest acres are managed in non-development LUDs or otherwise not available for harvest due to 2016 Forest Plan standards and guidelines.

In addition to productive forest lands, the Tongass includes approximately 4.6 million acres of unproductive forest. These are lands that are not capable of producing industrial forest products, but are important for watershed protection, wildlife habitat, recreation, scenic values and other multiple use purposes.

Under the 2016 Forest Plan, about 560,000 acres of forest lands are identified as suited for timber production. The U.S. Forest Service projects about 23,000 acres of old-growth and 43,000 acres of young-growth will be harvested in the first 25 years of plan implementation from these lands. One hundred years following implementation, the U.S. Forest Service projects that about 42,000 acres of old-growth and 280,000 acres of young-growth could be harvested from these lands.[23] This equates to only nine percent of the original productive old-growth forest being harvested over the next 100 years; thus, retaining 91% for future generations. Moreover, the 2016 Forest Plan anticipates 6,100 total miles of

[21] DEIS, p. 2-3 and 2-4.
[22] FEIS, 2016 Forest Plan, p. 3-328
[23] ROD, 2016 Forest Plan, Table 1, p. 9

roads to exist on the Tongass by 2095; substantially fewer than the 8,500 total miles of roads anticipated under the 1997 Forest Plan.[24]

The Preferred Alternative (Alternative 6) for the Alaska Roadless Rule proposes to exempt the Tongass from the 2001 Roadless Rule. If implemented, the roughly nine million acres currently inventoried as roadless areas would continue to be managed under the 2016 Forest Plan and statutory laws that provide lasting protections for roadless values. Alternative 6 would add about 165,000 old-growth acres and 20,000 young-growth acres to the land base suitable for timber production. Although the DEIS projects harvest on these additional suitable acres would be about 18,000 acres over 100 years, none of the action alternatives for the Alaska Roadless Rule would result in changes to the timber objectives of the 2016 Forest Plan, including the current projected timber sale quantity (PTSQ) of 46 million board feet (MMBF) annually and transitioning to primarily young-growth harvest within the next 15 years. This Young-Growth Transition Strategy is enumerated in the 2016 Forest Plan and implements the intent of then-Secretary of Agriculture Thomas Vilsack[25] to transition the Tongass to a young-growth-based timber program in 10 to 15 years, more rapidly than considered in the 2008 Forest Plan[26].

The degree to which the 2016 Forest Plan may contribute to maintaining roadless area characteristics is not adequately evaluated or described in detail in the DEIS[27]. For the FEIS, the State recommends the USDA analyze and adequately discuss aspects of the 2016 Forest Plan that will direct management for areas removed from roadless designations under Alternatives 2, 3, 4, 5, and 6 and contribute to maintaining roadless characteristics. We note that the 2016 Forest Plan's removal of the Transportation and Utility System (TUS) LUD is widely considered as an additional impediment to road building in the Tongass, as fully explained by the many comments and objections to the 2016 Forest Plan revision. Rather than having a TUS LUD corridor become the dominant LUD once a road or utility project is fully permitted, as was the case under previous Tongass management plans, under the 2016 Forest Plan road or utility projects must conform to the requirements of every LUD crossed by a proposed linear project. The removal of the TUS LUD from the 2016 Forest Plan substantially increases the number of approval conditions a project must receive and raises the risks that a project may never be developed. The Roadless Priority ARA is a step forward from the 2016 Forest Plan's Transportation Systems Direction and may improve the possibility of beneficial road projects being approved, which was lost with the removal of the TUS LUD. However, conflicts between administrative (2016 Forest Plan) and regulatory (Alaska Roadless Rule) management objectives related to roads would persist.

Likewise, Chapter 3 of the DEIS does not accurately describe the current limitations on the construction, operation and maintenance of roads and utilities connecting the communities of Southeast Alaska. For instance, the DEIS repeatedly states that the 2001 Roadless Rule provides an exception for Federal Aid Highway projects.[28] That exception is only available when "no other reasonable or prudent alternative exists."[29] Since Southeast Alaska is an archipelago, marine transportation systems have consistently been considered reasonable or prudent alternatives despite significantly higher lifetime costs and lower reliability compared to roads. The FEIS should also note that the vast majority of the State's current projects to connect Southeast Alaska communities are State-funded and cannot qualify for the Federal Aid Highway exemption, which is the same situation faced by communities, utilities, and developers in Southeast Alaska. The DEIS also downplays the difficulties faced by utilities installing transmission

[24] ROD, 2016 Forest Plan, p. 22
[25] Memorandum 1044-009, *Addressing Sustainable Forestry in Southeast Alaska*; USDA. 2013.
[26] 2016 Forest Plan FEIS, p. 1-1.
[27] The State filed objections to the 2016 Tongass Forest Plan. To the extent that the State discusses the 2016 Forest Plan here, the State's comments are intended only to aid in this rulemaking. The State maintains its objections to the 2016 Forest Plan.
[28] DEIS, p. 2-22, 3-51, and 3-145
[29] 36 C.F.R 294.12(b)(6)

lines. A more accurate description would let the public know that the Roadless Rule functionally prohibits the installation of transmissions lines, except in the very limited circumstance where the lines can be installed and maintained by helicopter or other non-road access methods (see also Appendix G comments below).

In several sections of Chapter 3, Environmental Effects, of the DEIS the mitigating effects of the 2016 Forest Plan are discussed with respect to aspects of each alternative and key issue, but a more comprehensive discussion of the degree to which the 2016 Forest Plan may contribute to maintaining roadless area characteristics, values, and functions in the Tongass seems lacking. For example, the section on *Tongass Forest Plan Old-growth Habitat Conservation Strategy*[30] provides a concise summary of how old-growth habitats are maintained through a network of reserves on the Tongass to protect species that have the highest viability concerns, and how components of the old-growth ecosystem are maintained through 2016 Forest Plan standards and guidelines designed to provide important ecological functions in areas outside the reserve network. Unfortunately, there appears to be little correlation described in the DEIS of protections to roadless area characteristics, which are also maintained by the same conservation strategy. Similar examples can be found when evaluating the Young-growth Transition Strategy, Tongass Timber Sale Program Adaptive Management Strategy, Tongass 77 Watersheds, The Nature Conservancy / Audubon Conservation Priority Areas, non-development land use designations, forest-wide standards and guidelines and other 2016 Forest Plan components that limit commercial timber harvest and road construction, reconstruction, or maintenance activities on the Tongass. The State recommends that the FEIS include a section that summarizes the various analyses found throughout the DEIS related to those components of the 2016 Forest Plan that may contribute to maintaining roadless area characteristics, values, and functions in the future for areas removed from designation under the 2001 Roadless Rule, as proposed in Alternatives 2, 3, 4, 5, and 6.

Key Issue 1 – Roadless Area Conservation

Pursuant to Alaska Administrative Order 299, the State convened the Alaska Roadless Rule Citizen Advisory Committee (Committee) in September 2018. Thirteen Committee members represent diversity of perspectives, including Alaska Native corporations and tribes, fishing, timber, conservation, tourism, utilities, mining, transportation, local government, and the Alaska Division of Forestry. A U.S. Forest Service representative serves in an *ex officio* capacity to provide technical expertise for the Committee's deliberations. The Committee was facilitated by Meridian Institute, a non- profit organization that helps people solve complex and often controversial problems, make informed decisions, and implement solutions that improve lives, the economy, and the environment[31].

In their Final Report to the Governor and State Forester (November 21, 2018)[32], the Committee determined that the 2001 Roadless Rule characteristics "do not align with the unique characteristics found in Alaska." Instead, the Committee found that the unique roadless characteristics represented by the roadless areas in the Tongass include the following[33]:

- *Alaska Native people who have been on this land for more than 10,000 years, and for whom this place has cultural and spiritual significance.* The use of places, sites, waters, structures, resources, and objects are historically significant in the beliefs, customs, practices, and perpetuation of the culture(s) of communities and indigenous peoples of the area. While the

[30] DEIS, p. 3-59
[31] Alaska Roadless Rule Citizen Advisory Committee, Final Report to the Governor and State Forester, State of Alaska, November 21, 2018, p. 1-2
[32] Submitted to the USDA by the State on November 23, 2018 as an enclosure to the State's cooperating agency comments on Preliminary DEIS Chapter 2.
[33] Alaska Roadless Rule Citizen Advisory Committee, Final Report to the Governor and State Forester, State of Alaska, November 21, 2018, p. 4-5

Alaska Native people now share this place with other residents, it is critical that they continue to have the ability to sustain their cultures and their communities through economic, social, and cultural opportunities.

- *Expansive areas where high quality intact habitat exist and ecosystems function with all of their native species and components; there are no listed or endangered species; and invasive species are generally not present.* These areas function as biological strongholds and refuges for many species, harbor a diversity of plant and animal communities, and serve as a globally significant example of a temperate rainforest ecosystem that is both utilized and conserved by the people that live within and adjacent to it. Species exist in Alaska Roadless Areas[34] that are endangered, threatened, or reduced in other places on the continent.

- *Opportunities for economic development of visitor industry products, including remote-setting guided nature tours to view wildlife, hunt, fish, and hike.* Alaska Roadless Areas contribute to a regional resource of undeveloped lands that are an important resource for a segment of the visitor sector – an important component of the matrix of Tongass lands that provide opportunity for medium to larger groups to go ashore in a wilderness-type setting. The intact ecological systems in these areas, with natural settings and iconic fish and wildlife, are a draw for visitors.

- *Stands of old growth forests.* These old growth forests are nationally and globally significant because they exist in quantities and extensions in Alaska like few other places on the planet. They support subsistence and traditional hunting and gathering, unique plant and wildlife populations, a significant volume of sequestered carbon and forest/soil processes that mitigate climate change and represent a globally significant reference landscape and intact old growth forest ecosystem.

- *Multiple species of fish (including salmon) harvested for subsistence and personal use, commercial fisheries, and tourism and guided recreational fishing.* Salmon, trout, char, and hooligan of the Tongass National Forest are harvested in subsistence fisheries and for personal use by local residents. Salmon and trout are also the basis of tourism and guided fisheries enjoyed by thousands of visitors, supporting hundreds of tourism and support businesses. The commercial fisheries derived from Tongass streams and rivers produce a significant proportion of the total Alaska salmon harvest, and support fishing and processing jobs for thousands of local residents and nonresidents.

- *High-quality scenery, especially scenery with natural-appearing landscapes, is a primary quality that people value in Alaska Roadless Areas.* Quality scenery contributes directly to the quality of life and recreation opportunities for residents, property owners, and visitors.

- *Watersheds that are important sources of public drinking water and water sources for fish and aquatic resources, including hatcheries.* State regulations are currently enforced and applied using the most restrictive standard for water quality criterion as listed in 18 AAC 70. Careful management of these watersheds is crucial in maintaining the flow of clean water to local communities, and to support continued production of fisheries and aquatic food webs.

- *An important source of subsistence resources for Alaskans.* Roadless Areas are rich in important subsistence resources, including game, fish, and foraging resources for those residents whose use and access rights are specifically recognized and guaranteed by the Alaska National Interest Lands Conservation Act (ANILCA).

[34] In this context, Alaska Roadless Areas are the same 9.2 million acres of Inventoried Roadless Areas in the Tongass

- *A major source of economic activity for Southeast Alaskans.* The Tongass National Forest surrounds 34 communities and approximately 73,000 year-round residents. These residents heavily rely on Roadless Areas for economic activities, including mining, visitor products, ocean products, forest products, energy production, and other economic activities.

Some Committee members raised concerns to the State that the USDA, Forest Service did not alter the definition of roadless areas in the DEIS or consider implementing an Alaska-specific definition for roadless areas, even though such areas in Alaska have specific, unique characteristics that set them apart from IRAs in the lower 48.[35] A summary of feedback from individual interviews with Committee members by Meridian Institute is enclosed. Interviews were conducted in December 2019.

The State recommends that the FEIS include an evaluation and adequate discussion of the roadless area characteristics developed by the Committee for this rulemaking. These characteristics provide greater specificity than the *2001 Roadless Rule Characteristics, Modified for Alaska*[36] presented and discussed in the DEIS. It should be noted, this is a **state specific** rule making process and these important and widely supported recommendations are not provided adequate weight and inclusion in the DEIS.

Key Issue 2 - Support Local and Regional Socioeconomic Well-being, Alaska Native Culture, Rural Subsistence Activities, and Economic Opportunity Across Multiple Economic Sectors

In general, the discussion of Key Issue 2 in the DEIS downplays the critical importance of resource extraction and the associated increased economic opportunities that resource extraction may bring to communities in Alaska. The State recommends the FEIS expand on the contributions resource extraction sectors makes to local and regional economies.

To better evaluate and understand the potential availability of economic timber resources to support and maintain a viable timber industry in the Tongass, the State contracted with the Alaska Forest Association (AFA) to analyze each alternative described in the DEIS for this rulemaking (see enclosed report). The AFA concluded, in part, that "[n]o matter the alternative selected in the Record of Decision for the "Rulemaking for Alaska Roadless Areas" at least 82 out of every 100 acres of suitable old growth forest within the Tongass National Forest will not be available to maintain the existing timber industry through transition."[37]

Mining and Mineral Development

The DEIS states, "The right of access is guaranteed and is not at the discretion of the Forest Service. Exploration, mining, and mineral processing activities, including road construction and reconstruction, are presently allowed in IRAs and would continue to be allowed under all alternatives."[38] It is the State's understanding that the question regarding access to mineral resources in IRAs is not one of whether a right exists, but rather the significant discretion used by the U.S. Forest Service in determining what is "reasonable" access.

Although Alternatives 1 through 5 for the Alaska Roadless Rule include an exception to the prohibition on road construction in IRAs when "A road is needed pursuant to reserved or outstanding rights, or as provided for by statute or treaty", there is no apparent criteria to guide the Responsible Official for determining when a road is needed to support mineral exploration or development. Therefore, the

[35] Meridian Institute, (December 2019). Alaska Roadless Rule Citizen Advisory Committee: Summary of Feedback on the Alaska Roadless Rule Draft Environmental Impact Statement.
[36] Table 3.1-1 and DEIS p. 3-7 through 3-12
[37] Alaska Forest Association (December 2019). *Alaska State Specific Rulemaking: Analysis of Draft Environmental Impact Statement Alternatives to Determine Economic Timber Acreage and Volume by Geographic Areas in the Tongass National Forest.*
[38] DEIS, p. 3-50 and 3-51.

question or issue of what constitutes "reasonable access" is subjective and at the discretion of the Responsible Official despite the "right of access" afforded under the 1872 Mining Law and ANILCA.

In scoping comments[39], a broad coalition of entities discussed the issue of road access for mineral exploration and development in Alaska-specific IRAs, provided a number of examples of where the discretion used by the U.S. Forest Service has limited such road access, and recommended using 36 C.F.R. Part 228 for authorizing roads for access to mineral resources in Tongass IRAs, just as it is used in non-IRA. Similarly, the Committee also recommended the U.S. Forest Service use its existing regulations under 36 C.F.R Part 228 for approving mineral-related roads in roadless areas of the Tongass (see *Recommended exceptions for road construction, reconstruction, or maintenance in ARAs* below). The State recommends that the FEIS acknowledge that the relevant issue regarding mineral exploration and development in IRAs under the 2001 Roadless Rule is determining what constitutes "reasonable access", and that roaded access to mineral resources, especially during the early and intermediate exploration phases, has been restricted to non-roaded access in IRAs of the Tongass due to the discretion afforded the Responsible Official under the 2001 Roadless Rule. The State supports the use of 36 C.F.R Part 228 for determining the minimum level of environmental protections roaded access to mineral resources must attain in its design before it is authorized by the U.S. Forest Service.

Leasable Minerals

Prohibiting roadbuilding for new leasable mineral projects through rulemaking (e.g. oil, gas, coal, or geothermal) in either IRAs (Alternative 1) or ARAs (Alternatives 2, 3, 4, and 5)[40] effectively precludes these uses and constitutes a withdrawal of federal lands.

ANILCA Section 1326(a) prevents future administrative withdrawals over 5,000 acres in the aggregate, unless authorized by Congress.

FUTURE EXECUTIVE ACTIONS

> *ANILCA SEC. 1326. (a) No future executive branch action which withdraws more than five thousand acres, in the aggregate, of public lands within the State of Alaska shall be effective except by compliance with this subsection. To the extent authorized by existing law, the President or the Secretary may withdraw public lands in the State of Alaska exceeding five thousand acres in the aggregate, which withdrawal shall not become effective until notice is provided in the Federal Register and to both Houses of Congress.* ***Such withdrawal shall terminate unless Congress passes a joint resolution of approval within one year after the notice of such withdrawal has been submitted to Congress.*** [Emphasis added]

The Selected Alternative in the ROD and the Final Alaska Roadless Rule must comply with ANILCA, TTRA, and other applicable laws.

Key Issue 3 – Conserve Terrestrial Habitat, Aquatic Habitat, and Biological Diversity

The State generally agrees with the following conclusion in the DEIS related to cumulative effects:

> *Overall, biological diversity on the Tongass and in Southeast Alaska remains in good condition and the landscape continues to be dominated by old-growth forest ecosystems. As development*

[39] Crocket, D., MacKinnon, N., Dahl, C., Venerables, R., Graham, O., Starkey, C., Acteson, T., & Hall, M. (2018). *Scoping comments on proposed rulemaking for Alaska-specific Roadless Rule*; submitted to Ken Tu (USDA, Forest Service) Oct. 15, 2018

[40] DEIS, p. 3-51

> *continues through timber harvest and associated activities such as road building, mining activities, energy development, and community expansion, particularly in areas where extensive development has already occurred (i.e., Prince of Wales Island), maintaining connectivity and roadless refugia will become increasingly important, particularly for wide-ranging species whose distribution depends on some level of connectivity across the landscape. In addition, the management of human resources will continue to play a role in maintaining biological diversity across the Tongass. Within the Tongass boundary, the Old-growth Habitat Conservation Strategy was designed to address the more extensive harvest on non-NFS lands through the old-growth reserve system and Forest-wide standards and guidelines, both of which were intended to maintain ecological components needed to maintain the ecological integrity important to a variety of organisms and maintain connectivity across the landscape, with or without much contribution from non-NFS lands. The overall Old-growth Habitat Conservation Strategy approach was developed prior to roadless designations and would be maintained regardless of the alternative selected.*

In addition to the *Old-Growth Habitat Conservation Strategy,* other aspects of the 2016 Forest Plan will contribute positively to the maintenance of roadless characteristics, values, and functions in the Tongass and should be discussed in greater detail in the FEIS (see Forest Plan comments above).

Appendix G: Draft Roadless Rule Regulatory Language

The State appreciates USDA's efforts to incorporate the 16 exceptions recommended by the Committee and submitted by the State to the USDA[41] for inclusion in the Alaska Roadless Rule.[42] Although the drafted roadless rule language[43] for Alternatives 2 through 5 propose additional exceptions for timber cutting, sale, or removal and road construction, reconstruction or maintenance – beyond what is currently afforded under the 2001 Roadless Rule – the language of the proposed exceptions repeatedly use two phrases that undermine the exceptions and fail to address the inherent uncertainty as to whether the exceptions will be applied fairly or consistently in practice by the Responsible Official.

First, Alternatives 2 through 5 use the phrase "no other *feasible* alternative," whereas the 2001 Roadless Rule uses the phrase "no other *reasonable and prudent* alternative." The 2001 Roadless Rule is currently unworkable in Southeast Alaska as marine or helicopter access alternatives can always be suggested to prevent road or utility construction; however, the proposed language exacerbates the problem by using the term feasible—which could prevent road building anytime a project could be built without a road—without regard to cost or practicability that arguably are considerations in the current 'reasonable and prudent' standard. For any Alaska Roadless Rule, any prerequisite of an unavailable alternative means of access should be eliminated, as that requirement obliterates any exception since Southeast Alaska largely consists of a group of islands that can be accessed by boat or helicopter.

Another condition that cancels out the USDA's proposed exceptions is that nearly all of the USDA's rephrased recommendations from the Committee have added a preliminary decision by the Responsible Official that "[a] road is needed for …" This, again, gives the Forest Service unlimited discretion to reject a road project on a finding that a road is not needed. The Committee's recommendations for when a road could be constructed or reconstructed were clearly written to apply when certain circumstances are met—without any preliminary decision by the Forest Service of whether marine or helicopter access made the road unnecessary.

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[41] Submitted to the USDA by the State on November 23, 2018 as an enclosure to the State's cooperating agency comments on Preliminary DEIS Chapter 2.

[42] Alaska Roadless Rule Citizen Advisory Committee, Final Report to the Governor and State Forester, State of Alaska, November 21, 2018, p. 8-9

[43] DEIS, Appendix G

The proposed regulations implementing alternatives 2 through 5 must also be consistent with provisions in ANILCA that apply to public lands. For example, on all public lands where the taking of fish and wildlife is permitted, ANILCA Section 1316 allows for temporary campsites, tent platforms, shelters, and other temporary facilities and equipment. As currently drafted, 36 CFR 294.54(a) under alternatives 2-5 would preclude tree cutting associated with ANILCA Section 1316, effectively precluding this allowance altogether. Similarly, the exceptions listed in subsection (c)(2) and (d)(3) for Alaska Native customary and traditional uses should not be limited to Watershed Priority ARAs or Roadless Priority ARAs, as subsistence use is allowed on all public lands.

Alaska Roadless Rule Citizen Advisory Committee Recommendations

Many Committee members feel that their recommendations were not carefully considered and/or reflected in the DEIS, particularly the exceptions language that the Committee had agreed should be applied to any option or alternative put forward. The Committee's recommended exceptions considered specific resource uses that the Committee saw as critical for community livelihoods and socioeconomic wellbeing in the Tongass. Several Committee members felt the omission of these exceptions made all of the DEIS alternatives less viable as long-term, durable solutions that reflect community needs.[44] A summary of feedback from the Committee in response to the DEIS is enclosed.

The State once again requests that the USDA adopt all of the Committee's exceptions into the draft language for Alternatives 2 through 5, without additional conditions or open-ended Forest Service discretion to reject proposed road building, to more clearly define activities that are excepted from the proposed general prohibitions:

Recommended exceptions for timber cutting, sale, or removal in ARAs

1. *Mining Exploration and Development.* While "reasonable access" is technically permitted in IRAs, cutting and removal of trees associated with mining exploration and development does not appear to be allowed. 36 C.F.R. § 294.13(b)(2) authorizes the cutting or removal of trees "incidental to implementation of a management activity not otherwise prohibited by this subpart." The necessary level of exploration to develop a mine on the Tongass National Forest requires the cutting and removal of trees. Mine development would typically require even more cutting and removal of trees.

   However, there is no mention of mining in the examples provided in the 2001 Rule of what this section authorizes.[45] Moreover, in describing this section the 2001 Rule states: "Such management activities are expected to be rare and to focus on small diameter trees."[46]

   Accordingly, a new exception for Alaska-specific rulemaking be added to 36 C.F.R. § 294.13(b):

   The cutting and removal of trees in connection with mineral exploration and mine development is authorized and shall be permitted as if the mineral exploration or mine development were being permitted on non-IRA National Forest land. Cutting and removal of trees may be sold and/or utilized on the project.

2. *Hydroelectric and Other Renewable Energy Infrastructure and Transmission Infrastructure Development.* The Committee recommends that the following new exception for hydroelectric and other renewable energy projects and related infrastructure be added to 36 C.F.R. § 294.13:

[44] Meridian Institute, (December 2019). Alaska Roadless Rule Citizen Advisory Committee: Summary of Feedback on the Alaska Roadless Rule Draft Environmental Impact Statement.
[45] 2001 Roadless Rule., at page 3258.
[46] 2001 Roadless Rule., at page 3257.

The cutting and removal of trees incidental to the construction and maintenance of hydroelectric and other renewable energy projects and related infrastructure, including transmission, is authorized. Such trees may be sold and/or utilized on the project.

3. *Forest Health.* The Committee recommends that the following new exception for Forest Health be added to 36 C.F.R. § 294.13:

   The cutting and removal of trees incidental to fire prevention, removal of hazard trees that reduce risk to the public, blowdown/windfall management, and/or insect and disease management, is authorized. Such trees may be sold and/or utilized on the project.

4. *Alaska Native Culture.* The Committee recommends that the following new exception for Alaska Native Culture be added to 36 C.F.R. § 294.13:

   The cutting and removal of trees in connection with Alaska Native custom and traditional uses is authorized.

5. *Fish and Wildlife Habitat Improvement.* The Committee recommends that the following new exception for fish and wildlife habitat be added to 36 C.F.R. § 294.13:

   The cutting and removal of trees for fish and wildlife habitat improvement is authorized. Such trees may be sold and/or utilized on the project.

6. *Road Building.* The Committee recommends that the following new exception for road building be added to 36 C.F.R. § 294.13:

   The cutting and removal of trees for permitted road building (as described in 36 C.F.R § 294.12) is authorized. Such trees may be sold and/or utilized on the project.

7. *Biofuels.* The Committee recommends that the following new exception for biofuels be added to 36 C.F.R. § 294.13(b):

   The cutting and removal of trees for biofuel for Southeast Alaska residential and municipal needs is authorized and will comply with current standards and regulations for harvest.

8. *Municipal Watersheds.* The Committee recommends that the following new exception for municipal watersheds be added to 36 C.F.R. § 294.13:

   The cutting and removal of trees for municipal watershed construction and management is authorized and such trees may be sold and/or utilized on the project.

Recommended exceptions for road construction, reconstruction, or maintenance in ARAs

1. Roads in Transportation Utility System (TUS) corridors identified in the Southeast Alaska Transportation Plan (SATP) for development and/or essential for reservation for the connection of communities and development of the regional transportation system shall be permitted. Adjustment of these TUS corridors shall be allowed outside of the corridor or easement if it provides a lower cost alternative or provides an alignment that is the Least Environmentally Damaging Practicable Alternative (LEDPA).

2. Roads in all Section 4407 Easements as Congress enacted in August 2005 in the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU; Public Law 109-59) shall be permitted. Adjustment of these Easements shall be allowed outside of the corridor or easement if it provides a lower cost alternative or provides an alignment that is the LEDPA.

3. A road to access Congressionally authorized Southeastern Alaska Intertie System Plan Routes (PL 106-511, February 1, 2001) as identified in report #97-01 of the Southeast Conference

shall be permitted.

4. A road to access mineral operations authorized by the United States mining laws (30 U.S.C.§ 22 et seq.) shall be permitted in IRAs if it meets the criteria of 36 C.F.R. Part 228 in the same way as if the application for the road to access such mineral operations were being permitted on non-IRA National Forest lands.
5. A road to access leasable minerals in IRAs shall be permitted if it meets the criteria of 36 C.F.R. Part 228 in the same way as if the application for the road to access such mineral operations were being permitted on non-IRA National Forest lands.
6. A road to access hydropower and renewable energy projects and their transmission infrastructure, including their maintenance, shall be permitted in the same way as if the application for the road to access such projects were being permitted on non-IRA National Forest lands. Renewable energy includes energy that is collected from renewable resources, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, geothermal heat, biomass, or other forms of energy.
7. A road included in a community, municipal, or tribal government plan to provide access and development of water resources, renewable energy resources, sanitary landfills, connecting isolated road networks, and subsistence resources, including maintenance of such roads and these facilities, shall be an allowed use.
8. A road for transportation, communication, and utility infrastructure and maintenance shall be permitted.
9. A road to access an authorized facility or location for fishery research, management, enhancement, and rehabilitation activities, fishways, fish weirs, fish ladders, fish hatcheries, spawning channels, stream clearance, egg planting, and other permitted aquaculture facilities or activities, including mariculture, shall be permitted.

Maps

The State recommends that the maps provided in the FEIS (Alternative_1 through 6 Maps, Outfitter Guide Alternative 1 through 6 Maps, and Suitability Alternative 1 through 6 Maps) clearly identify the various protective land use designations for the Tongass. For example, areas designated as wilderness, LUD II, and national monument. By not identifying such areas, the maps fail to provide viewers with an accurate picture of the existing protections that cover much of the Tongass, which will remain in place regardless of which Alaska Roadless Rule alternative is selected by the USDA.

Other Important Issues

Climate and Carbon

The FEIS should incorporate broader perspectives related to climate change and carbon-related processes relevant to the Tongass. The State recommends incorporating the National Association of State Foresters (NASF) policy papers*: Recommendations for Enhancing the Role of Forests in Climate Change Mitigation and Ecosystem Adaption to Climate Change* and *Emerging Markets for Wood and Their Positive Impact on Forest Resource Management* into the FEIS discussion of these topics (see enclosure).

ANILCA Section 810 Analysis

The State continues to recommend that the USDA use the available information in the DEIS to complete a Section 810 Analysis for the proposed Alaska Roadless Rule, as stated previously in our cooperating agency comments.[47]

Subsistence

The Legal Context for Subsistence Use[48]

The subsistence priority criteria found in Sec. 804 of ANILCA is implemented by prioritizing local subsistence users with direct dependence on the resource; local subsistence users are first among subsistence users. To implement this priority, when necessary, limits are first applied to general hunting, sport fishing, and commercial fishing.[49] The State recommends the following edits (additions ; ~~deletions~~) be incorporated into the FEIS to reflect this direction as well as recognize the authorities of the federal and state regulatory bodies:

> *The provisions in ANILCA established a harvest priority for rural residents in an attempt to protect subsistence resource harvest. Under ANILCA, in times of resource scarcity or when demand exceeds biologically sound harvest levels, subsistence harvests have priority over other consumptive use of resources. Such a priority shall be implemented through appropriate limitations based on the application of the following criteria: (1) customary and direct dependence upon the populations as the mainstay of livelihood; (2) local residency; and (3) the availability of alternative resources. In practice, state or federal fish and wildlife ~~management~~ regulatory authorities would limit commercial, sport, or other harvests before subsistence harvests are limited.*

The DEIS analyzes the effects of the proposed rule on subsistence uses and needs, including resource abundance and distribution, access, or competition[50]; however, these three factors aren't specifically identified in ANILCA, as the discussion in the DEIS indicates. Section 810(a) of ANILCA requires the evaluation of the effect of the proposed "…use, occupancy or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes." If the initial evaluation concludes that the federal action will cause a significant restriction of subsistence uses and needs, the head of the Federal Agency is required to give notice and hold hearings, as well as determine that:

> *(A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.*[51]

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[47] State of Alaska cooperating agency comments on Preliminary DEIS Chapter 2. Submitted to the USDA November 23, 2018.

[48] DEIS, p. 3-217

[49] ANILCA Section 804 states: "the taking on public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:
(1) customary and direct dependence upon the populations as the mainstay of livelihood;
(2) local residency; and
(3) the availability of alternative resources."

[50] DEIS, p. 218

[51] ANILCA Sec. 810(a)(3)

To determine if a significant restriction of subsistence uses and needs may result from an alternative, including their cumulative effects, the courts have upheld a BLM definition for "*significant restriction of subsistence uses*" that identifies three factors for consideration[52]:

- *The reduction in the availability of subsistence resources caused by a decline in the population or amount of harvestable resources:*
- *Reductions in the availability of resources used for subsistence purposes caused by alteration of their normal locations and distribution patterns; and*
- *Limitations on access to subsistence resource, including from increased competition for the resources*

The State recommends the following edits be made in the FEIS to reflect specific language and direction in ANILCA[53]:

> *ANILCA requires the ~~analysis~~ evaluation of potential effects on subsistence uses and needs of all actions on federal lands in Alaska to determine if the federal action would significantly restrict subsistence uses. This ~~analysis~~ evaluation typically focuses on those food-related resources most likely to be affected by habitat degradation associated with land management activities. If significant restrictions to subsistence uses are identified, prior to putting the federal action into effect, notice and hearings must occur. Per ANILCA Sec. 810(a)(3), the following three determinations must be made: "(A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions." To make these three determinations, the Forest Service shall analyze the following: 1) resource distribution and abundance, 2) access to resources, and 3) competition for the use of resources. These factors are discussed in general terms in the following paragraphs.*

Appendix E: Communities

The State requests the following language be added in the Subsistence Section[54] of the FEIS, Appendix E:

> *In the event a subsistence harvest priority is needed for rural residents, the state or federal fish and wildlife management authorities would first limit commercial, sport, and non-local subsistence harvests to mitigate impacts to local subsistence harvests.*

In conclusion, the State appreciates the work by the USDA to produce the DEIS and Proposed Alaska Roadless Rule. The State looks forward to continuing to assist the USDA, as a cooperating agency, to incorporate necessary improvements in the FEIS.

Sincerely,

Kyle Moselle
Associate Director

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[52] Kunaknana v. Clark, No. A83-337 Civil. 742 F.2d (9th Cir. 1984
[53] DEIS, p. 3-218
[54] DEIS, Appendix E, p. E-15

Enclosures:

Meridian Institute, (December 2019). Alaska Roadless Rule Citizen Advisory Committee: Summary of Feedback on the Alaska Roadless Rule Draft Environmental Impact Statement.

Alaska Forest Association (December 2019). *Alaska State Specific Rulemaking: Analysis of Draft Environmental Impact Statement Alternatives to Determine Economic Timber Acreage and Volume by Geographic Areas in the Tongass National Forest*

National Association of State Foresters (NASF) policy papers*: Recommendations for Enhancing the Role of Forests in Climate Change Mitigation and Ecosystem Adaption to Climate Change* and *Emerging Markets for Wood and Their Positive Impact on Forest Resource Management*

Cc: Corri Feige, Commissioner, DNR
Doug Vincent-Lang, Commissioner, ADF&G
Jason Brune, Commissioner, DEC
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Alaska Roadless Rule Citizen Advisory Committee

Summary of Feedback on the Alaska Roadless Rule Draft Environmental Impact Statement

Over the course of two weeks, the Alaska Roadless Rule Citizen Advisory Committee (CAC) members shared high-level feedback on the Alaska-specific Roadless Rule Draft Environmental Impact Statement (DEIS) in a series of short one-on-one interviews with Meridian Institute. CAC members were requested to provide input specifically on how the Committee's recommendations were reflected (or not) in the DEIS, and what advice they had for the State of Alaska in its Cooperating Agency Status with the U.S. Forest Service (USFS).

This document reflects a summary of comments received from Committee members. It does **not** represent consensus among members nor agreement about the options presented in the DEIS or the preferred alternative. It is intended to provide input to the State of Alaska, and does not exclude Committee members from providing comments as private citizens or on behalf of their organizations or industries directly to the USFS. Please find the list of Committee members in Appendix A, and a list of interview questions in Appendix B.

DEIS Preferred Alternative

When asked about the preferred alternative proposed in the DEIS, Committee members were split in their responses. 50 percent of members polled expressed opposition to the preferred alternative, sharing that they would preferred an alternative that represented something "in the middle," rather than one of the "bookends" of no action or a full exemption. The other half of members supported the preferred alternative of a full exemption, because they believed it represented the only alternative that would allow for development for multiple uses through local decision-making authority.

Of those that expressed opposition to the preferred alternative, they cited the following reasons:

- **Ongoing divisiveness.** Because the preferred alternative is the 'most extreme' of possible options, Committee members expressed concern that it ensures divisiveness and limits space for compromise in Southeast Alaskan land management. Some members discussed frustration that the CAC's charge to identify middle-ground alternatives that fell between a full exemption or a no-action alternative were not reflected in the preferred alternative.
- **Durability.** One of the Committee's original guiding principles for developing recommendations for a state-specific Roadless Rule was to prioritize a durable solution that could limit future legal challenges regarding management in the Tongass. Several Committee members expressed concern that the preferred alternative, should it be implemented, would be litigated and prevent future projects in the region for years to come. Some expressed uncertainty that the Rule would reach the implementation stage given likely legal challenges.

- **Public perception.** A preferred alternative that abolishes the Roadless Rule in the Tongass has turned the rulemaking process into national headline news. With this level of media attention, some members expressed that environmental groups and other advocates have now launched – and will continue to launch – large, well-funded, well-coordinated campaigns to litigate the decision and turn public perception against ongoing cooperation, development, and joint land management in the Tongass. Even some members that were supportive of the full exemption agreed that public perception and communication is a significant issue, particularly with regard to a misunderstanding of the way that the Tongass Land & Resource Management Plan is implemented.

Committee members expressing their approval for the preferred alternative of a full exemption shared a variety of reasons, including:

- **Development.** Some Committee members felt that a full exemption is the only alternative in the DEIS that grants adequate development allowances for Southeast Alaskan needs, particularly to ensure renewable energy development, road building, and mining. They recognized that the current Roadless Rule has exceptions for these uses, but without changes to how these exceptions are administered – which is currently left to subjective interpretation, and a complicated, expensive, slow-moving and ineffective process – they are insufficient.
- **Exceptions.** None of the options included the CAC's exceptions language, which would have guaranteed an easier, more streamlined process for granting permission for a range of resource uses, including mining, cultural timber usage, roadbuilding, and renewable energy development. Without those exceptions, some Committee members could not support anything less than a full exemption, stating that the full exemption was the only alternative that would address the needs outlined in these exceptions. One Committee member provided additional information that describes problems associated with the omission of these exceptions. This information is provided in Appendix C.
- **Local authority.** Several Committee members expressed support for bringing increased authority back to the local level, rather than deferring management decisions to a Rule that supersedes the Forest Plan.
- **Support for the State's position.** A few Committee members expressed alignment with the State's position, which is a full exemption, expressing that this position best supports the future of communities and the health and wellbeing of the citizens of Southeast Alaska.

CAC Recommendations in the DEIS

The CAC's final recommendations report consisted of three elements:

- Recommendations for how to amend Roadless Area Characteristics to be Alaska-specific (these represented consensus from all members);
- Exceptions language for consideration for incorporation in any option presented in the DEIS for specific resource uses (these represented consensus from all members); and
- Four options with specific acreage and geographic considerations to be analyzed as potential areas to remove and retain as Roadless in the Tongass.

Many Committee members felt that the CAC's recommendations were not carefully considered nor reflected in the DEIS, particularly the exceptions language that the Committee had agreed should be applied to any option or alternative put forward. This was the primary point of criticism from most Committee members, whether supportive of the preferred alternative or not. These exceptions considered specific resource uses that the CAC saw as critical for community livelihoods and socioeconomic wellbeing in the Tongass. Several members felt the omission of these exceptions made all of the DEIS alternatives less viable as long-term, durable solutions that reflect community needs.

Other members raised concerns that the USFS did not alter the definition of Roadless Areas or consider implementing an Alaska-specific definition of Roadless Areas, even though Roadless Areas in Alaska have specific, unique characteristics that set them apart from Roadless Areas in the lower 48.

Despite these omissions, some members felt that the geographic component of alternatives 2-5 (i.e., how many acres to add or remove from Roadless areas, and in what regions) had considered and incorporated the Committee's four options, specifically because of the consideration they granted Tongass 77 (T77) and The Nature Conservancy/Audubon Conservation Areas and community priority areas around specific municipalities.

Other Comments for the State

Committee members shared additional comments for the State's consideration in its Cooperating Agency status with the USFS, including:

- **Look to the middle.** Some Committee members urged the State to look for a middle-ground alternative – even slightly to the left of a full exemption – to avoid bitter future litigation in the courts and provide greater stability and durability to projects on the Tongass in the coming years. Some requested that the CAC be reconvened to help identify such a middle ground option.
- **Public comments.** A few Committee members asked that the State more seriously consider the weight of public comments in the USFS process and in USFS and State consultative meetings, which have overwhelmingly represented opposition to a full exemption and the preferred alternative.
- **Cooperating Agency status.** A few Committee members flagged concerns regarding the incorporation of Cooperating Agencies input, particularly tribal entities who had Cooperating Agency status with the USFS. They felt that this input was not equally or fairly reflected in the DEIS compared to the State's input.
- **Improved public communication.** Several Committee members suggested that a major shortcoming throughout the Rulemaking process – both from the State and the USFS – has been poor public communication leading to media and organizational campaigns that do not accurately reflect the actual potential changes to the Tongass under a full exemption. Specifically, they expressed concern that public perception was that a full exemption would open all Roadless acres for timber harvest, when in fact only a small portion of those acres will be eligible for harvest under the existing Forest Plan. This issue was brought up by members regardless of whether they were supportive of the full exemption alternative or not. They recommended improved public communications to counteract national headlines and negative public sentiment and focusing on the need for a greater level of local input and control, rather than framing a conversation around timber.

- **Validity of the Committee.** Several Committee members raised concerns that the CAC process was not useful for the State or could not be fully considered as part of the State's Cooperating Agency status because of the State's position to push for a full exemption, so they felt their comments were not important either way. The question was also raised regarding the utility/validity of the Committee given the change in gubernatorial administration, and one member requested that the State request guidance from Governor Dunleavy regarding the best format and usage of the CAC's input.
- **A Forest in transition.** A few Committee members wished to remind the State to keep in mind the context of the transition to young growth forest management. They noted that any changes to management, particularly changes that have implications for timber harvest, must consider the implications for young growth management. Specifically, one member urged the State to consider the backlog of forest management activities on existing young growth acres, and the future management needs represented by continued old growth harvest.

Appendix A. Citizen Advisory Committee Members

* denotes those who did *not* provide input for this document.

Trey Acteson
Southeast Alaska Power Agency

Bert Burkhart
Alaska Forest Association

Nicole Grewe*
Ex Officio Member
US Forest Service, Region 10

Brian Holst*
Juneau Economic Development Council

Andy Hughes
Alaska Department of Transportation & Public Facilities (retired)

Michael Kampnich
The Nature Conservancy

Jaeleen Kookesh
Sealaska Corporation

Chris Maisch
Alaska Division of Forestry

Eric Nichols
Alcan Forest Products

Andrew Thoms
Sitka Conservation Society

Jan Trigg
Coeur Alaska Kensington Mine

Robert Venables
Southeast Conference

Mark Vinsel
United Fishermen of Alaska

Ralph Wolfe
Central Council Tlingit & Haida Indian Tribes of Alaska

Appendix B. Interview Questions

1. Have you had a chance to review any information about the DEIS? Regardless of level of detail you were able to digest, what are your general reactions to what is included in the DEIS and what was chosen as the preferred alternative?
2. In looking at the crosswalk document and/or DEIS, in what ways were you satisfied with how the recommendations appeared, and what areas illustrated important omissions or misinterpretations?
3. Do you have any ideas, concerns, or suggestions regarding the development of the FEIS and into implementation?
4. Please share any additional information that you would like the State to keep in mind in its Cooperating Agency role with the US Forest Service in this process.

Alaska State Specific Rulemaking

Analysis of Draft Environmental Impact Statement Alternatives to Determine Economic Timber Acreage and Volume by Geographic Areas in the Tongass National Forest

By Alaska Forest Association

December 13, 2019

Table of Contents

BACKGROUND

> *"In June 2018, the Secretary of Agriculture directed the Chief of the Forest Service to initiate a state-specific rulemaking for roadless area management direction for the Tongass National Forest on behalf of the Department. In developing a rulemaking to establish an Alaska roadless rule, USDA is responding to the State of Alaska's petition (January 2018) requesting an exemption of the Tongass National Forest from the 2001 Roadless Rule."*
>
> *"A state-specific roadless rule would determine which currently designated roadless areas in the Tongass National Forest would require a different management designation to further Alaska's economic development or other needs, while still conserving roadless areas for generations to come. Inventoried roadless areas covered by the 2001 Roadless Rule comprise 9.2 million acres (55 percent) of the Tongass National Forest (16.8 million acres)."*
>
> Alaska Roadless Rule webpage – Tongass National Forest website

In late January 2019, the Alaska Forest Association (AFA) met with the State of Alaska to discuss conducting an analysis of the timbered lands involved in the Alaska Roadless Rule rulemaking. An Agreement between the Alaska Division of Forestry (DOF) and AFA to conduct the analysis was signed in March of 2019.

The analysis was agreed to be based on:

USFS Alternatives with priority alternatives being 6 and 3

Information shown by Ranger District, LUD, T77 watersheds and TNC/Audubon priority areas

Information would include the following:

Acres removed from "roadless" – total acres, economic acres, and available acres within economic acres.

Volume removed from "roadless" - total volume, economic volume, and available volume within economic volume.

Loss of Acres and Volume ("fall down") due to 2016 Forest Plan Standards and Guidelines

Estimates of "fall down" to economic acres due to management decisions

Identify access blockages to economic timber due to T77 and TNC/Audubon areas.

Acres available under the 2016 Forest Plan and economic acres by alternative to determine which alternatives might be able to maintain a viable timber industry

Maps to be developed by alternative

The analysis performed was based on information provided by the United States Forest Service (USFS) to the maximum extent possible. It should be understood that the analysis conducted was office based and included very limited on the ground verification due to time constraints and the extremely large size of the area involved.

The following GIS information/layers/shapefiles were requested and obtained from the USFS:

Ranger Districts, VCUs, LUDs, Timber Types, Suitable lands, Streams, Soils and Slope, 2001 Roadless, TNC-Audubon priority areas, T77 watersheds, State's Citizens Advisory Community alternatives, USFS alternatives and 2008 Forest Plan LSTA (Logging Systems & Transportation Analysis)

Additional information used during the analysis included the preliminary draft environmental impact statement (DEIS) provided to DOF by the USFS.

ANALYSIS

The analysis included in this report was conducted on the alternatives developed by the USFS for the Alaska Roadless Rule EIS.

AFA was unable to conduct an analysis on the alternatives developed by the State of Alaska Citizen's Advisory Committee (CAC) because GIS data for those alternatives were unavailable. The USFS did not include any of the Citizen's Advisory Committee's alternative into the project's EIS. In an e-mail to DOF the USFS stated the following regarding the CAC's alternatives:

> *"Unfortunately the Forest Service does not have an analysis of differences between the CAC options and current DEIS alternatives. The only thing we have is that CAC option A aligns most closely with Alt 2; Option B aligns most closely with Alt 4; Option C has no equivalent; and Option D aligns most closely with Alt 6."*
>
> E-mail from: Ken Tu, Regional Environmental Coordinator, Forest Service

Alternatives

There are six alternatives being considered in the Alaska Roadless Rule Environmental Impact Statement:

Alternative 1 is the "no action" alternative and makes no change to roadless on the Tongass.

Alternative 2 removes roadless designation from areas commonly referred to as roaded roadless.

Alternative 3 removes roadless designation from areas commonly referred to as roaded roadless and logical extensions of the roaded landbase as determined by the USFS.

Alternative 4 removes roadless designation from areas commonly referred to as roaded roadless and logical extensions of the roaded landbase as determined by the USFS. Alternative 4 also includes a new roadless designation, "Timber Priority" which allows timber management to occur within certain roadless areas.

Alternative 5 removes roadless from all lands within the Development Land Use Designations (LUDs).

Alternative 6 is the full exemption alternative and removes roadless from the Tongass. Acres that would become available for timber management under Alternative 6 are the same acres as Alternative 5 due to 2016 Forest Plan constraints.

Ranger Districts

Calculation of acres and volume by alternative were determined by Tongass National Forest Ranger District.

Land Use Designations

Acres and Volume by alternative were calculated for the development landbase under the Forest Plan. Acres and volume were not developed for each Land Use Designation (Timber Production, Modified Landscape and Scenic Viewshed) that make up the development landbase.

When Land Use Designations affected the amount of fall down (a reduction in acres) due to 2016 Forest Plan requirements then calculations were done by LUD with the results totaled and the sum listed as a total for each Ranger District.

Geographic Areas

Geographic areas within the Tongass affect volume calculations and Model Implementation Reduction Factors (MIRF).

Volume Calculations

Average volume/acre by volume classes (High (H), Medium (M), and Low (L)) were determined using North & South Tongass geographic areas and the associated volumes for each volume class as listed in Table 3.13-4 of the 2016 Forest Plan FEIS on pg. 3-332. The average volume/acre used in the North geographic area is L-13 mbf/ac., M-21 mbf/ac. and H-30 mbf/ac. Average volume for the South geographic area is L-16 mbf/ac., M-24 mbf/ac., and H-34 mbf/ac.

Model Implementation Factor (MIRF)

Is used to help determine the actual amount of suitable lands that will not be available for forest management *"due to a number of physical, biological, or economic considerations"* (2016 Forest Plan Appendix B pg. B-23). The percentage of reduction used in determining MIRF is based on geographic area and volume class. The table below from pg. B-24 of Appendix B of 2016 Forest Plan FEIS shows the various percentages of reduction used.

	Low Volume	Medium Volume	High Volume
Chatham	49% – 99%	39% – 64%	39%
Stikine	23% – 73%	13% – 38%	13%
Ketchikan	29% – 79%	19% – 44%	19%

After meeting with the USFS GIS Specialist connected to the Alaska Roadless Rule Interdisciplinary Team, MIRF was not used in determining available acreage in the spreadsheet associated with this report. Instead, AFA chose to use the GIS Suitability layer provided by the USFS. It is possible that the suitability layer does not account for all the unknowns that MIRF was created to cover and the acres and volume numbers within the various spreadsheet of this report are somewhat inflated.

MIRF as shown in the table above was used during the development of the summary spreadsheet that shows available timber when suitable acres from the 2016 Forest Plan are combined with acres that become suitable under the action alternatives included in the DEIS.

MIRF reduction factors were used as a means to address fall down during a District's planning process for project that includes timber harvest. The lowest percentage reduction factor was used for each volume class. The Chatham area percentages were used for the north districts since that area best reflects that portion of the Tongass. The Stikine area percentages were used for the south districts for two reasons; a large portion of "roadless" acres are located on the Wrangell and Petersburg districts and since the USFS suitability layer addresses fall down at the Forest Plan level, the lower reduction percentages were used to ensure that fall down was not over-estimated.

REDUCTION FACTORS

There are two basic types of reduction factors; those directly connected to the Forest Plan and ones that occur due to the method(s) that the USFS uses to implement a project. In both cases,

acres can be eliminated from being suitable and available or acres can remain suitable but be unavailable for a period of time.

Forest Plan Reduction Factors

MIRF

Discussed previously; but in general, MIRF is supposed to cover reductions in suitability and availability that are unknown. Factors such as unknown streams requiring TTRA protection, steep soils, karst features and wildlife related items such as eagle trees result in acres becoming unsuitable for timber management. Cost efficiency is a MIRF factor that may be overcome over time with changes in market conditions or advances in technology. Again, AFA chose to address MIRF by using the USFS GIS suitability layer for Forest Plan fall down. MIRF factors were used to address district planning fall down.

Suitability

The suitability of a stand of timber for forest management is discussed in Appendix A of the 2016 Forest Plan. In the development of this analysis, two suitability factors cause significant reductions in the number of acres suitable for timber harvest.

One factor was the determination that old growth acres within Value Comparison Units (VCUs) that contained T77 watersheds and old growth acres within TNC/Audubon conservation priority area were *"not suitable for timber production"* (2016 Forest Plan, pg. A-5).
The second factor was the determination that *"Old-growth forest located within Phases 2 and 3 of the Tongass Timber Sale Program Adaptive Management Strategy … are not suitable for timber production"* (2016 Forest Plan, pg. A-5).

Both of these factors are accounted for within this report's spreadsheets.

Regulation Class

Is the method to address scenery objectives during project implementation within the development landbase.

> *"Regulation Class is a methodology developed to distill the unique combinations of Land Use Designation (LUD), Distance Zone (DZ), Scenic Integrity Objective (SIO), and Visual Absorption Capacity (VAC) into four management categories, or Regulation Classes. These classes group lands that allow similar allowable harvest unit size, visual disturbance, and re-entry times (adjacency)."* (2016 Forest Plan Appendix B, pg. B-20)

Regulation classes do not make acreage unavailable like suitability does; however, it does limit the number of acres that can be harvested over a set period of time. The least restrictive regulation class allows for the removal of 40% of the acreage in a VCU over a 20-year period. Based on the 2016 Forest Plan, the Tongass timber sale program will transition to a program predominately based on the harvest of young growth within 15 years. Due to the transition

timeframe the majority of the acres removed from roadless will not be available due to regulation class requirements.

Table B-7
Generalized Visual Constraints
Regulation Class Visual Disturbance Adjacency

Regulation Class	Visual Disturbance	Adjacency
1	40%	20 Years
2	30%	35 Years
3	20%	50 Years

Legacy

There are 49 VCUs in the Tongass that the Legacy Standard and Guideline applies to; these VCUs have had at least 33 percent or more of the POG harvested already or will have more than 67 percent of the POG harvested by the end of the Forest Plan "planning horizon." Under Legacy 30% of any unit over 20 acres in size must be left in "legacy forest structure." Acres left for Legacy should be scattered across the unit. Acreage left for other resource concerns (example – steep soils) counts towards Legacy acreage except for TTRA stream buffers.

For acreage within Legacy VCUs where "roadless" will be removed, AFA decreased the available acreage by 15 percent. A 15 percent deduction was used instead of the 30 percent requirement to account for the ability to use acres deducted for other resource concerns as part of the Legacy requirement. The 15 percent is a reasonable deduction amount based on AFA's knowledge of how the USFS is currently implementing the Legacy requirement.

Wildlife Habitat Planning IV B – Legacy Standard

In harvest units greater than 20 acres within VCUs identified in Section D, leave 30 percent of the entire unit (based on area) in legacy forest structure. For the purpose of this standard, the unit is defined as the original Logging System/Transportation Analysis (LSTA) boundary prior to field verification. Legacy forest structure should remain indefinitely after harvest and shall be tracked through the life of the next stand. Salvage logging of legacy trees is generally prohibited unless the rationale is clearly documented and the effects are clearly neutral or an improvement. (2016 Forest Plan pg. 4-86)

Timber Sale Adaptive Management Strategy

The Record of Decision for the 2008 Forest Plan introduced a management strategy that was intended to protect moderate and high value roadless areas until such time that the timber resources within those areas were needed to meet the fiber demands of the timber industry. The strategy did not make the acreage in those areas unsuitable for timber production; the strategy only requires a threshold of harvest level to be reach before harvest could occur in Phase 2 or Phase 3 lands. In Appendix A of the 2016 Forest Plan the old-growth forest located within Phase 2 and 3 lands was determined to be unsuitable for timber production (pg. A-5;

section 3. B.) Forested lands within Phase 2 and 3 of the Adaptive Management Strategy have not been included in the available acreage when "roadless" is removed by an alternative.

> *B. Old-growth forest located within Phases 2 and 3 of the Tongass Timber Sale Program Adaptive Management Strategy (refer to the December 2016 Tongass National Forest Timber Sale Program Adaptive Management Strategy map), or within the T77₁ Watersheds and The Nature Conservancy / Audubon conservation priority areas (refer to the June 2016 Final EIS Alternative 5 Suitable Land map) is identified as not suitable for timber production.* (2016 Forest Plan Appendix A, pg. A-5)

Implementation Reduction Factors

Economics

The Tongass National Forest is required to offer only positive value timber sales per language in the Annual Appropriations Acts. In 2007, the Tongass commissioned a study by Tetra Tech to determine what areas within the Tongass could produce positive value timber sales based on the management requirements of what would become the 2008 Forest Plan. The study was done using the Spectrum modeling system and the LSTA developed for the 2008 Plan. The outcome of the study was a list of VCUs across the Tongass that would produce positive value timber sales based on the 2008 Forest Plan. The study also showed VCUs where only a portion of the VCU was capable of producing positive value timber sales.

For the Alaska Roadless Rule analysis, AFA separated all VCUs into one of two categories, positive value or negative value. The determination was made on the total VCU not just the portion of each VCU that was positive value.

<u>Acres and volumes for positive and negative value VCUs are included in this report's spreadsheets.</u>

Selective Harvest Prescriptions and Helicopters

Silvicultural prescriptions other than even-age management are currently occurring or being planned for at a rate much higher than historical rates. The selected alternative in the Record of Decision for the Prince of Wales Landscape Level Analysis (POW LLA) requires uneven age management on 57% of the acres included in the alternative. Initial information provided to AFA in 2018 for the Central Tongass Project (CT) showed some type of uneven age management on 31% of the acres within the project area.
(The CT DEIS which was released for comments on 8-2-19 states on pg. 59 listed the amount of helicopter as 30% of the gross unit pool.)

<u>These 2 projects included 53% of the suitable Old Growth acres available under the 2016 Forest Plan.</u>

Historically, the majority of uneven age management has occurred using helicopters as the logging system. Currently there are no companies using helicopters to harvest timber operating on the Tongass. Uneven age management prescriptions using helicopters for harvesting have included prescriptions that allow either one-quarter, one-third or one-half removal of the trees

within a stand based on basal area with the removal by species based on the percentage of occurrence of the species in the stand.
Based on current and historical uneven-age prescriptions and the percentage of helicopter "acres" in planning areas; the following reductions in acres and volume could occur in areas where harvest restrictions due to "roadless" are removed:

> With a helicopter available on the Tongass –a reduction that equals one third of the available acres
>
> Without a helicopter being available – a reduction that equals one half of the available acres

<u>This type of fall down has not been accounted for in this analysis on the Alaska Roadless Rule project for the action alternatives in the DEIS. This fall down factor was included in the analysis that combined suitable acres from the 2016 Forest Plan with action alternatives from the DEIS.</u>

Planning Fall Down

Because forested acres are suitable for timber production does not mean that those acres will actual be harvested. During the USFS planning process, acres are dropped for various reasons usually involving concerns about protecting other resources. Trying to quantify that reduction is problematic.

Based on the POW LLA and CT projects reductions between suitable acres and acres included in a project's unit pool range from 39% for the CT project (information provided AFA in 2018) to 58% for the POW LLA (FEIS Table 12; pg. 3-111).

Update

On August 2, 2019; the USFS released the Draft EIS for the Central Tongass Project.

The DEIS for the CT project shows a reduction of 48% from suitable (82,177 ac.) to gross unit pool (42,779 ac.) according to Table 7 on pg. 60. In addition to the fall down between suitable and gross unit pool, the CT DEIS states on pg. 56:

> *"For example, on Mitkof Island there has been a reduction of around 75 percent from the mapped old-growth which defined the gross unit pool for Alternative 2 to the potential harvest units as identified through recent field surveys. For Alternative 3, there would be an estimated additional reduction of around 10 percent for the elevational corridors and deferral of high-volume, low-elevation old-growth on Mitkof Island."*

Wildlife design criteria for Alternative 3 of the CT projects further reduces the amount of available OG in the gross unit pool by 5,999 acres (Table 8 on pgs. 60 & 61). For Alternative 3 the reduction from suitable to gross unit pool is 56 percent.

Stopping at the reduction between suitable and gross unit pool for the CT project does not capture the entire "fall down" seen in that proposed project. There is an additional loss in acreage between what is included in the gross unit pool and what will be actually cleared by the project's EIS.

> *"However, it is important to note that the mapped gross unit pool on which these percentages are based substantially overestimate the amount of actual timber harvest that would occur under either action alternative (the mapped gross unit pool encompasses a total of 42,779 acres of old growth while the maximum that could be harvested is 9,500 acres based on the Alternative 2 limits for old growth harvest (22.2 percent of the gross unit pool)."* (CT DEIS Pg. 84)

The fall down between suitable acres of POG in the project area and acres of POG proposed to be cleared by the EIS is 88% for Alternative 2, the percent of fall down will be greater for Alternative 3. The acres not cleared by the EIS are not lost entirely; they could be made available in a future project. However, the CT project will result,

> "*in a decision whether to authorize integrated resource management activities on the Petersburg and Wrangell Ranger Districts over the next 15 years."* (CT DEIS Abstract)

In 15 years the Tongass will have transitioned to a timber sale program of which the majority of the volume offered will be young growth.

<u>This type of fall down (planning) has not been accounted for in this analysis on the Alaska Roadless Rule project for the action alternatives in the DEIS. This fall down factor was included in the analysis that combined suitable acres from the 2016 Forest Plan with action alternatives from the DEIS.</u>

MIRF reduction factors were used as a means to address planning fall down during a District's planning process for a project that includes timber harvest. The lowest percentage reduction factor was used for each volume class. The Chatham area percentages were used for the north districts since that area best reflects that portion of the Tongass. The Stikine area percentages were used for the south districts for two reasons; a large portion of "roadless" acres are located on the Wrangell and Petersburg districts and since the USFS suitability layer addresses fall down at the Forest Plan level, the lower reduction percentages were used to ensure that fall down was not over-estimated.

Reductions Beyond Requirements of the Forest Plan

The Record of Decision for the POW LLA contained a requirement to use only un-even aged harvest in old growth stands and two-age or uneven-aged harvest in young growth stands within a 5-mile radius circle surrounding "subsistence communities" located within the project area. This requirement affected approximately 7,600 acres of old growth and 28,000 acres of young growth and results in a loss of two-thirds of the old growth and at least half of the young growth acres.

This type of fall down has not been accounted for in this analysis on the Alaska Roadless Rule project but should not be overlooked.

SPREADSHEETS

Gross Acres Spreadsheet

For each alternative the acres of productive old growth (POG) within the development landbase (Timber Production, Modified Landscape and Scenic Viewshed Land Use Designations) that would have "roadless" removed or become Timber Priority roadless under Alternative #4 was determined. If the acres of POG were suitable or not under the 2016 Forest Plan was not considered when calculating total acres or volume for the Gross Acres spreadsheet. This spreadsheet also lists the acres of POG included in the T77 watersheds and the TNC/Audubon priority areas.

AFA-USFS Difference in Suitable Acres Spreadsheet

This spreadsheet shows the difference between acres calculated by AFA and those calculated by the USFS by ranger district for acres suitable under the 2016 Forest Plan. Most differences are GIS "errors" and or changes between GIS layers used during the development of the DEIS. There is a difference in Alternative #2 for the Petersburg Ranger District that cannot be explained.

Positive Value VCUs And Negative Value VCUs Spreadsheet

These spreadsheets break down the acres that would have "roadless" removed or become Timber Priority roadless under Alternative #4 by positive or negative values based on VCUs. The 2007 Tetra Tech analysis was used to determine positive or negative values. It should be noted that not all acres within a given VCU are positive or negative in value. The determination was made on a VCU basis. These spreadsheets also list the acres of POG included in the T77 watersheds and the TNC/Audubon priority areas.

Phase 2 & 3 Positive Value VCUs And Phase 2 & 3 Negative Value VCUs Spreadsheet

These spreadsheets break down the acres that would have "roadless" removed or become Timber Priority roadless under Alternative #4 by positive or negative values based on VCUs for acres of POG located in Phase 2 and Phase 3 lands per the Timber Sale Adaptive Management Strategy. These lands were determined to be unsuitable for the harvest of OG timber by the 2016 forest Plan. The spreadsheets show acres of available POG by ranger district by positive or negative value VCUs. The 2007 Tetra Tech analysis was used to determine positive or negative values. These spreadsheets also list the acres of POG within Phase 2 or Phase 3 lands for the T77 watersheds and the TNC/Audubon priority areas.

Summary Spreadsheet

The Summary Spreadsheet takes the information developed from the spreadsheets listed above to produce an estimate of acres, volume and years of OG timber supply at the current PTSQ available when the suitable acres of OG under the 2016 Forest Plan are combined with acres of

OG that become available under each of the action alternatives from the Rulemaking for Alaska Roadless Areas DEIS (R10-MB-867a, October 2019).

CONCLUSION

Based on federal law and regulations including the 2018 Consolidated Appropriations Act, the Standards and Guidelines within the 2016 Forest Plan, GIS information provided by the USFS, the preliminary DEIS for the Alaska Roadless Rule and the "Rulemaking for Alaska Roadless Areas" DEIS; at least 79-83% of the suitable old growth forest landbase will be unavailable for timber harvest over the next 20 years. An additional 3-4% of the suitable land base will most likely become unavailable during the planning process. Based on the 5-mile radius circle surrounding subsistence communities included in the POW LLA and the proposed wildlife corridors included in Alternative 3 of the Central Tongass EIS planning process reductions could be greater on a project by project basis.

No matter the alternative selected in the Record of Decision for the "Rulemaking for Alaska Roadless Areas" at least 82 out of every 100 acres of suitable old growth forest within the Tongass National Forest will not be available to maintain the existing timber industry through transition.

AK ROADLESS RULE DEIS	2016 FOREST PLAN	APPROPRIATION LANGUAGE REQUIREMENT	AFTER FOREST PLAN FALLDOWN		AFTER DISTRICT PLANNING PROCESS			IMPLEMENTATION		
ALTERNATIVES	TOTAL SUITABLE OG ACRES	POSITIVE VALUE ACRES	VOLUME (MMBF)	YEARS @ PTSQ	ACRES AFTER REDUCTION DURING PLANNING PROCESS	VOLUME (MMBF)	ESTIMATED YEARS @ PTSQ BASED ON 2016 FOREST PLAN	ADJUSTED ACRES BASED ON SELECTIVE CUTS W/ HELICOPTER	VOLUME (MMBF)	YEARS @ PTSQ
ALT. #1 (FOREST PLAN)	229,060	48,698	924	20.09	41,335	784	17.04	27281	518.0	11.3
ALT. #2 AND FOREST PLAN	247,060	51,966	982	21.34	43,568	827	17.98	28755	546.0	11.9
ALT. #3 AND FOREST PLAN	305,060	60,134	1,128	24.52	51,136	970	21.09	33750	640.0	13.9
ALT. #4 AND FOREST PLAN	387,060	67,593	1,254	27.26	53,831	1021	22.20	35528	674.0	14.7
ALT. #5 AND FOREST PLAN	394,060	67,728	1,255	27.29	53,262	1011	21.98	35153	667.0	14.5
ALT. #6 AND FOREST PLAN	394,060	67,728	1,255	27.29	53,262	1011	21.98	35153	667.0	14.5

POSITIVE VALUE ACRES BASED ON TETRA TECH STUDY DONE FOR 2008 FOREST PLAN

REDUCTION IN ACRES DURING PLANNING BASED ON MIRF REDUCTION FACTOR FOR VOLUME CLASS BY LOCATION IN NORTH/SOUTH DISTRICTS

REDUCTION DUE TO SELECTIVE CUTTING BASED ON THE % OF TOTAL AVAILABLE ACRES HARVESTED BY HELICOPTER

POSITIVE VALUE VCUs

ALTERNATIVE #1

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	10,751.7	15,418.6	25,321.3	60,221.2	15,714.5	127,427.3	3,195.5	-	-		3,195.5	130,623
	TOTAL VOLUME	219.2	291.7	457.0	1,195.3	272.7	2,435.9	46.5	-	-		46.5	2,482
													-
PHASE 1	TOTAL ACRES	10,751.7	15,418.6	25,321.3	60,221.2	15,714.5	127,427.3	3,195.5	-	-	-	3,195.5	130,623
	TOTAL VOLUME	219.2	291.7	457.0	1,195.3	272.7	2,435.9	46.5	-	-	-	46.5	2,482
													-
AFTER SUITABILITY	TOTAL ACRES	10,751.7	15,418.6	25,321.3	60,221.2	15,714.5	127,427.3	3,195.5	-	-	-	3,195.5	130,623
	TOTAL VOLUME	219.2	291.7	457.0	1,195.3	272.7	2,435.9	46.5	-	-	-	46.5	2,482
													-
AFTER REG. CLASS	TOTAL ACRES	4,300.1	6,156.3	10,086.9	24,011.3	6,276.4	50,831.0	1,278.2	-	-	-	1,278.2	52,109
	TOTAL VOLUME	87.7	116.5	182.2	476.7	108.9	972.0	18.6	-	-	-	18.6	991
													-
AFTER LEGACY	TOTAL ACRES	4,001.0	5,799.8	10,086.9	21,619.7	5,911.9	47,419.3	1,278.2	-	-	-	1,278.2	48,698
	TOTAL VOLUME	82.0	109.6	182.2	428.8	102.8	905.4	18.6	-	-	-	18.6	924
PTSQ - 46 MMBF	**DISTRICT VOLUME**	82.00	109.60	182.20	428.80	102.80	905.4	18.60	0.00	0.00	0.00	18.60	924
	YRS.	1.78	2.38	3.96	9.32	2.23	19.68	0.40	0.00	0.00	0.00	0.40	20.09

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	5,047.94	89.22	5,047.94	89.22	3,815.83	65.73	1,525.98	26.29	1,435.12	24.73
2	Ketchikan - Misty Ranger District	1,035.11	18.24	1,035.11	18.24	748.76	13.24	297.27	5.25	297.14	5.25
3	Petersburg Ranger District	1,916.53	32.03	1,902.84	31.79	1,341.79	22.51	505.55	8.58	505.55	8.58
4	Thorne Bay Ranger District	2,240.69	45.73	2,240.69	45.73	1,493.78	30.43	592.79	12.10	531.51	10.86
5	Wrangell Ranger District	2,126.89	36.61	2,126.89	36.61	1,301.31	21.12	498.78	8.11	498.78	8.11
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	2,257.50	52.97								

		POSITIVE VALUE VCUs														
ALTERNATIVE #2																
		SOUTHERN RANGER DISTRICTS								NORTHERN RANGER DISTRICTS						TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL		TOTAL		HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL		
GROSS POG	TOTAL ACRES	5,047.9	1,035.1	1,916.5	2,240.7	2,126.9		12,367.2		-	-	-	2,257.5	2,257.5		14,625
	TOTAL VOLUME	89.2	18.2	32.0	45.7	36.6		221.8		-	-	-	53.0	53.0		275
																-
PHASE 1	TOTAL ACRES	5,047.9	1,035.1	1,902.8	2,240.7	2,126.9		12,353.5		-	-	-	-	-		12,353
	TOTAL VOLUME	89.2	18.2	31.8	45.7	36.6		221.6		-	-	-	-	-		222
																-
AFTER SUITABILITY	TOTAL ACRES	3,815.8	748.8	1,341.8	1,493.8	1,301.3		8,701.5		-	-	-	-	-		8,701
	TOTAL VOLUME	65.7	13.2	22.5	30.4	21.1		153.0		-	-	-	-	-		153
																-
AFTER REG. CLASS	TOTAL ACRES	1,526.0	297.3	505.5	592.8	498.8		3,420.4		-	-	-	-	-		3,420
	TOTAL VOLUME	26.3	5.3	8.6	12.1	8.1		60.3		-	-	-	-	-		60
																-
AFTER LEGACY	TOTAL ACRES	1,435.1	297.1	505.5	531.5	498.8		3,268.1		-	-	-	-	-		3,268
	TOTAL VOLUME	24.7	5.2	8.6	10.9	8.1		57.5		-	-	-	-	-		58
PTSQ - 46 MMBF	**DISTRICT VOLUME**	24.73	5.25	8.58	10.86	8.11		57.5		0.00	0.00	0.00	0.00	0.00		58
	YRS.	0.54	0.11	0.19	0.24	0.18		1.25		0.00	0.00	0.00	0.00	0.00		1.25

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	5,047.94	89.22	5,047.94	89.22	3,815.83	65.73	1,525.98	26.29	1,435.12	24.73
2	Ketchikan - Misty Ranger District	1,035.11	18.24	1,035.11	18.24	748.76	13.24	297.27	5.25	297.14	5.25
3	Petersburg Ranger District	1,916.53	32.03	1,902.84	31.79	1,341.79	22.51	505.55	8.58	505.55	8.58
4	Thorne Bay Ranger District	2,240.69	45.73	2,240.69	45.73	1,493.78	30.43	592.79	12.10	531.51	10.86
5	Wrangell Ranger District	2,126.89	36.61	2,126.89	36.61	1,301.31	21.12	498.78	8.11	498.78	8.11
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	2,257.50	52.97								

POSITIVE VALUE VCUs

ALTERNATIVE #3

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	10,689.0	10,483.6	5,615.2	17,111.2	4,710.8	48,609.6	209.5	-	-	9,558.0	9,767.6	58,377
	TOTAL VOLUME	189.0	191.0	91.6	330.1	78.5	880.1	2.7	-	-	274.7	277.4	1,158
													-
PHASE 1	TOTAL ACRES	10,689.0	10,483.6	5,486.4	16,566.3	4,710.8	47,935.9	209.5	-	-	-	209.5	48,145
	TOTAL VOLUME	189.0	191.0	88.9	318.9	78.5	866.3	2.7	-	-	-	2.7	869
													-
AFTER SUITABILITY	TOTAL ACRES	7,433.4	5,059.9	3,673.4	10,643.4	3,274.9	30,085.0	181.9	-	-	-	181.9	30,267
	TOTAL VOLUME	129.6	90.9	59.9	203.7	52.7	536.9	2.3	-	-	-	2.3	539
													-
AFTER REG. CLASS	TOTAL ACRES	2,971.3	2,016.1	1,427.0	4,221.8	1,287.8	11,924.0	72.7	-	-	-	72.7	11,997
	TOTAL VOLUME	51.8	36.2	23.4	80.9	20.7	213.1	0.9	-	-	-	0.9	214
													-
AFTER LEGACY	TOTAL ACRES	2,804.9	2,005.2	1,427.0	3,838.2	1,287.8	11,363.1	72.7	-	-	-	72.7	11,436
	TOTAL VOLUME	49.1	36.0	23.4	73.5	20.7	202.7	0.9	-	-	-	0.9	204
PTSQ - 46 MMBF	**DISTRICT VOLUME**	49.11	35.99	23.38	73.45	20.75	202.7	0.91	0.00	0.00	0.00	0.91	204
	YRS.	1.07	0.78	0.51	1.60	0.45	4.41	0.02	0.00	0.00	0.00	0.02	4.43

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	10,688.95	188.95	10,688.95	188.95	7,433.38	129.64	2,971.29	51.83	2,804.93	49.11
2	Ketchikan - Misty Ranger District	10,483.57	190.98	10,483.56	190.98	5,059.92	90.91	2,016.07	36.21	2,005.20	35.99
3	Petersburg Ranger District	5,615.18	91.56	5,486.37	88.94	3,673.42	59.89	1,426.97	23.38	1,426.97	23.38
4	Thorne Bay Ranger District	17,111.17	330.09	16,566.26	318.93	10,643.39	203.68	4,221.84	80.90	3,838.20	73.45
5	Wrangell Ranger District	4,710.76	78.49	4,710.76	78.49	3,274.88	52.74	1,287.79	20.75	1,287.77	20.75
6	Hoonah Ranger District	209.54	2.69	209.54	2.69	181.85	2.27	72.74	0.91	72.74	0.91
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,558.03	274.75								

POSITIVE VALUE VCUs

ALTERNATIVE #4

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	12,601.2	15,531.3	22,094.5	25,157.5	8,071.8	83,456.2	1,169.2	-	-	9,449.2	10,618.4	94,075
	TOTAL VOLUME	223.9	284.3	354.8	482.5	136.8	1,482.2	16.6	-	-	271.5	288.1	1,770
													-
PHASE 1	TOTAL ACRES	12,601.2	15,531.2	16,673.5	23,984.0	8,071.8	76,861.8	1,169.2	-	-	-	1,169.2	78,031
	TOTAL VOLUME	223.9	284.3	264.9	459.6	136.8	1,369.6	16.6	-	-	-	16.6	1,386
													-
AFTER SUITABILITY	TOTAL ACRES	8,490.1	7,754.1	11,568.7	15,238.7	5,656.8	48,708.4	815.7	-	-	-	815.7	49,524
	TOTAL VOLUME	147.5	141.1	181.0	290.6	93.9	854.1	11.3	-	-	-	11.3	865
													-
AFTER REG. CLASS	TOTAL ACRES	3,394.0	3,076.6	4,553.1	6,038.2	2,240.0	19,301.8	325.6	-	-	-	325.6	19,627
	TOTAL VOLUME	59.0	56.0	71.2	115.2	37.2	338.6	4.5	-	-	-	4.5	343
													-
AFTER LEGACY	TOTAL ACRES	3,206.1	3,035.6	4,553.1	5,575.0	2,199.7	18,569.4	325.6	-	-	-	325.6	18,895
	TOTAL VOLUME	55.9	55.2	71.2	106.3	36.6	325.2	4.5	-	-	-	4.5	330
PTSQ - 46 MMBF	**DISTRICT VOLUME**	55.92	55.20	71.24	106.31	36.56	325.2	4.50	0.00	0.00	0.00	4.50	330
	YRS.	1.22	1.20	1.55	2.31	0.79	7.07	0.10	0.00	0.00	0.00	0.10	7.17

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	12,601.21	223.91	12,601.21	223.91	8,490.14	147.47	3,393.99	58.96	3,206.05	55.92
2	Ketchikan - Misty Ranger District	15,531.26	284.33	15,531.25	284.33	7,754.10	141.14	3,076.60	55.98	3,035.62	55.20
3	Petersburg Ranger District	22,094.51	354.75	16,673.51	264.93	11,568.66	181.03	4,553.07	71.24	4,553.07	71.24
4	Thorne Bay Ranger District	25,157.46	482.47	23,983.99	459.61	15,238.70	290.58	6,038.16	115.19	5,575.00	106.31
5	Wrangell Ranger District	8,071.80	136.78	8,071.80	136.78	5,656.78	93.92	2,240.02	37.21	2,199.69	36.56
6	Hoonah Ranger District	1,169.20	16.63	1,169.20	16.63	815.73	11.28	325.62	4.50	325.62	4.50
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,449.18	271.51								

POSITIVE VALUE VCUs

ALTERNATIVE #5

		SOUTHERN RANGER DISTRICTS							NORTHERN RANGER DISTRICTS						TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL		TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL		
GROSS POG	TOTAL ACRES	12,605.3	15,528.2	22,207.2	25,194.5	8,076.4		83,611.6	1,169.2	-	-	9,558.0	10,727.2		94,339
	TOTAL VOLUME	224.0	284.3	356.3	478.5	136.9		1,479.9	16.6	-	-	274.7	291.4		1,771
															-
PHASE 1	TOTAL ACRES	12,605.3	15,528.2	16,786.2	24,021.0	8,076.4		77,017.1	1,169.2	-	-	-	1,169.2		78,186
	TOTAL VOLUME	224.0	284.3	266.5	455.6	136.9		1,367.2	16.6	-	-	-	16.6		1,384
															-
AFTER SUITABILITY	TOTAL ACRES	8,493.6	7,752.2	11,670.1	15,446.8	5,661.4		49,024.0	815.7	-	-	-	815.7		49,840
	TOTAL VOLUME	147.5	141.1	182.4	291.9	94.0		857.0	11.3	-	-	-	11.3		868
															-
AFTER REG. CLASS	TOTAL ACRES	3,395.4	3,075.8	4,593.6	6,120.7	2,241.9		19,427.4	325.6	-	-	-	325.6		19,753
	TOTAL VOLUME	59.0	56.0	71.8	115.7	37.3		339.7	4.5	-	-	-	4.5		344
															-
AFTER LEGACY	TOTAL ACRES	3,207.2	3,034.8	4,593.6	5,666.9	2,201.5		18,704.1	325.6	-	-	-	325.6		19,030
	TOTAL VOLUME	55.9	55.2	71.8	107.1	36.6		326.6	4.5	-	-	-	4.5		331
	DISTRICT VOLUME	55.94	55.18	71.80	107.07	36.59		326.6	4.50	0.00	0.00	0.00	4.50		331
	YRS.	1.22	1.20	1.56	2.33	0.80		7.10	0.10	0.00	0.00	0.00	0.10		7.2

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	12,605.34	224.00	12,605.34	224.00	8,493.57	147.54	3,395.36	58.99	3,207.22	55.94
2	Ketchikan - Misty Ranger District	15,528.20	284.26	15,528.19	284.26	7,752.17	141.10	3,075.83	55.97	3,034.85	55.18
3	Petersburg Ranger District	22,207.17	356.30	16,786.17	266.47	11,670.10	182.42	4,593.64	71.80	4,593.64	71.80
4	Thorne Bay Ranger District	25,194.51	478.46	24,021.04	455.61	15,446.80	291.87	6,120.66	115.68	5,666.90	107.07
5	Wrangell Ranger District	8,076.41	136.88	8,076.41	136.88	5,661.38	94.02	2,241.87	37.25	2,201.53	36.59
6	Hoonah Ranger District	1,169.20	16.63	1,169.20	16.63	815.73	11.28	325.62	4.50	325.62	4.50
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,558.03	274.75								

								POSITIVE VALUE VCUs								
ALTERNATIVE #5 T77 Areas Only																
		SOUTHERN RANGER DISTRICTS								NORTHERN RANGER DISTRICTS						TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL		TOTAL		HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL		
GROSS POG	TOTAL ACRES	0.0	0.0	3,285.1	270.9	5,038.4		8,594.4		-	-	0.0	12.4	12.5		8,607
	TOTAL VOLUME	0.0	0.0	66.3	4.8	84.1		155.2		-	-	0.0	0.4	0.4		156
																-
PHASE 1	TOTAL ACRES	0.0	0.0	3,284.7	270.9	5,038.4		8,594.0		-	-	0.0	-	0.0		8,594
	TOTAL VOLUME	0.0	0.0	66.3	4.8	84.1		155.2		-	-	0.0	-	0.0		155
																-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
																-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
																-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
PTSQ - 46 MMBF	**DISTRICT VOLUME**	0.00	0.00	0.00	0.00	0.00		0.0		0.00	0.00	0.00	0.00	0.00		0
	YRS.	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0		0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District										
2	Ketchikan - Misty Ranger District										
3	Petersburg Ranger District	3,285.12	66.29	3,284.71	66.28						
4	Thorne Bay Ranger District	270.88	4.84	270.88	4.84						
5	Wrangell Ranger District	5,038.37	84.09	5,038.37	84.09						
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District	0.04	0.00	0.04	0.00						
9	Yakutat Ranger District	12.44	0.39								

POSITIVE VALUE VCUs

ALTERNATIVE #5 TNC/AUD Priority Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	0.0	0.8	699.2	1,946.0	5,038.3	7,684.3	-	-	-	12.5	12.5	7,697
	TOTAL VOLUME	0.0	0.0	12.5	38.6	84.1	135.1	-	-	-	0.4	0.4	136
													-
PHASE 1	TOTAL ACRES	0.0	0.8	699.2	1,442.4	5,038.3	7,180.7	-	-	-	-	-	7,181
	TOTAL VOLUME	0.0	0.0	12.5	29.5	84.1	126.1	-	-	-	-	-	126
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
PTSQ - 46 MMBF	**DISTRICT VOLUME**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	0.01	0.00	0.01	0.00						
2	Ketchikan - Misty Ranger District	0.77	0.02	0.77	0.02						
3	Petersburg Ranger District	699.22	12.48	699.22	12.48						
4	Thorne Bay Ranger District	1,946.01	38.56	1,442.41	29.48						
5	Wrangell Ranger District	5,038.29	84.09	5,038.29	84.09						
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	12.47	0.39								

NEGATIVE VALUE VCUs

ALTERNATIVE #1

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	2,748.7	11,175.0	25,172.8	2,209.6	12,633.4	53,939.5	15,196.2	6,208.7	21,633.8	-	43,038.7	96,978
	TOTAL VOLUME	53.0	217.1	457.5	48.6	210.4	986.6	216.0	80.5	305.5	-	602.0	1,589
													-
PHASE 1	TOTAL ACRES	2,748.7	11,175.0	25,172.8	2,209.6	12,633.4	53,939.5	15,196.2	6,208.7	21,633.8	-	43,038.7	96,978
	TOTAL VOLUME	53.0	217.1	457.5	48.6	210.4	986.6	216.0	80.5	305.5	-	602.0	1,589
													-
AFTER SUITABILITY	TOTAL ACRES	2,748.7	11,175.0	25,172.8	2,209.6	12,633.4	53,939.5	15,196.2	6,208.7	21,633.8	-	43,038.7	96,978
	TOTAL VOLUME	53.0	217.1	457.5	48.6	210.4	986.6	216.0	6,208.7	305.5	-	6,730.2	7,717
													-
AFTER REG. CLASS	TOTAL ACRES	1,087.7	4,466.7	9,971.3	883.5	5,038.8	21,448.0	6,034.6	2,481.3	8,644.2	-	17,160.1	38,608
	TOTAL VOLUME	21.0	86.8	181.3	19.4	83.9	392.4	85.7	32.2	122.1	-	240.0	632
													-
AFTER LEGACY	TOTAL ACRES	1,087.7	4,386.0	9,971.3	883.5	5,038.8	21,367.3	6,034.6	2,481.3	8,517.2	-	17,033.1	38,400
	TOTAL VOLUME	21.0	85.1	181.3	19.4	83.9	390.7	85.7	32.2	120.4	-	238.3	629
PTSQ - 46 MMBF	**DISTRICT VOLUME**	21.00	85.10	181.30	19.40	83.90	390.7	85.70	32.20	120.40	0.00	238.30	629
	YRS.	0.46	1.85	3.94	0.42	1.82	8.49	1.86	0.70	2.62	0.0	5.18	13.67

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	289.90	5.29	275.78	5.10	264.69	4.93	105.87	1.97	105.87	1.97
2	Ketchikan - Misty Ranger District	3,548.62	66.91	3,548.62	66.91	2,286.34	42.62	909.87	16.91	909.87	16.91
3	Petersburg Ranger District	6,295.58	117.24	6,295.22	117.24	4,530.20	82.79	1,798.76	32.84	1,798.76	32.84
4	Thorne Bay Ranger District	1,102.37	18.62	1,102.37	18.62	700.08	11.71	280.03	4.69	280.03	4.69
5	Wrangell Ranger District	2,717.53	41.04	2,717.53	41.04	2,255.63	33.51	901.44	13.39	901.44	13.39
6	Hoonah Ranger District	621.78	8.39	612.31	8.22	353.40	4.86	141.36	1.94	141.36	1.94
7	Juneau Ranger District	1,268.61	16.24	370.27	6.67	247.08	4.14	98.83	1.66	98.83	1.66
8	Sitka Ranger District	770.38	9.66	745.63	9.38	629.44	7.81	251.78	3.12	251.78	3.12
9	Yakutat Ranger District	92.72	3.03								

NEGATIVE VALUE VCUs

ALTERNATIVE #2

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	289.9	3,548.6	6,295.6	1,102.4	2,717.5	13,954.0	621.8	1,268.6	770.4	92.7	2,753.5	16,707
	TOTAL VOLUME	5.3	66.9	117.2	18.6	41.0	249.1	8.4	16.2	9.7	3.0	37.3	286
													-
PHASE 1	TOTAL ACRES	275.8	3,548.6	6,295.2	1,102.4	2,717.5	13,939.5	612.3	370.3	745.6	-	1,728.2	15,668
	TOTAL VOLUME	5.1	66.9	117.2	18.6	41.0	248.9	8.2	6.7	9.4	-	24.3	273
													-
AFTER SUITABILITY	TOTAL ACRES	264.7	2,286.3	4,530.2	700.1	2,255.6	10,036.9	353.4	247.1	629.4	-	1,229.9	11,267
	TOTAL VOLUME	4.9	42.6	82.8	11.7	33.5	175.6	4.9	4.1	7.8	-	16.8	192
													-
AFTER REG. CLASS	TOTAL ACRES	105.9	909.9	1,798.8	280.0	901.4	3,996.0	141.4	98.8	251.8	-	492.0	4,488
	TOTAL VOLUME	2.0	16.9	32.8	4.7	13.4	69.8	1.9	1.7	3.1	-	6.7	77
													-
AFTER LEGACY	TOTAL ACRES	105.9	909.9	1,798.8	280.0	901.4	3,996.0	141.4	98.8	251.8	-	492.0	4,488
	TOTAL VOLUME	2.0	16.9	32.8	4.7	13.4	69.8	1.9	1.7	3.1	-	6.7	77
PTSQ - 46 MMBF	**DISTRICT VOLUME**	1.97	16.91	32.84	4.69	13.39	69.8	1.94	1.66	3.12	0.00	6.72	77
	YRS.	0.04	0.37	0.71	0.10	0.29	1.52	0.04	0.04	0.07	0.0	0.15	1.66

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	289.90	5.29	275.78	5.10	264.69	4.93	105.87	1.97	105.87	1.97
2	Ketchikan - Misty Ranger District	3,548.62	66.91	3,548.62	66.91	2,286.34	42.62	909.87	16.91	909.87	16.91
3	Petersburg Ranger District	6,295.58	117.24	6,295.22	117.24	4,530.20	82.79	1,798.76	32.84	1,798.76	32.84
4	Thorne Bay Ranger District	1,102.37	18.62	1,102.37	18.62	700.08	11.71	280.03	4.69	280.03	4.69
5	Wrangell Ranger District	2,717.53	41.04	2,717.53	41.04	2,255.63	33.51	901.44	13.39	901.44	13.39
6	Hoonah Ranger District	621.78	8.39	612.31	8.22	353.40	4.86	141.36	1.94	141.36	1.94
7	Juneau Ranger District	1,268.61	16.24	370.27	6.67	247.08	4.14	98.83	1.66	98.83	1.66
8	Sitka Ranger District	770.38	9.66	745.63	9.38	629.44	7.81	251.78	3.12	251.78	3.12
9	Yakutat Ranger District	92.72	3.03								

NEGATIVE VALUE VCUs

ALTERNATIVE #3

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	531.0	16,153.7	22,444.6	4,980.6	18,408.2	62,518.1	4,231.8	1,381.5	5,764.5	3,453.6	14,831.4	77,349
	TOTAL VOLUME	9.8	295.3	385.5	83.4	299.9	1,073.9	59.1	17.2	83.3	43.4	203.0	1,277
													-
PHASE 1	TOTAL ACRES	510.0	14,750.3	22,444.3	4,946.7	15,861.5	58,512.7	4,221.1	370.3	5,339.8	-	9,931.1	68,444
	TOTAL VOLUME	9.5	272.1	385.5	82.9	252.7	1,002.7	58.9	6.7	78.3	-	143.8	1,146
													-
AFTER SUITABILITY	TOTAL ACRES	447.2	9,521.7	15,315.1	3,224.4	11,114.8	39,623.1	3,353.3	247.1	3,753.0	-	7,353.4	46,977
	TOTAL VOLUME	8.3	174.2	253.5	53.5	174.1	663.6	46.6	4.1	54.0	-	104.8	768
													-
AFTER REG. CLASS	TOTAL ACRES	178.9	3,633.7	6,013.5	1,289.7	4,444.8	15,560.6	1,341.3	98.8	1,501.2	-	2,941.4	18,502
	TOTAL VOLUME	3.3	66.5	99.8	21.4	69.6	260.6	18.7	1.7	21.6	-	41.9	302
													-
AFTER LEGACY	TOTAL ACRES	178.8	3,633.6	6,013.5	1,289.7	4,444.8	15,560.5	1,341.3	98.8	1,501.2	-	2,941.4	18,502
	TOTAL VOLUME	3.3	66.5	99.8	21.4	69.6	260.6	18.7	1.7	21.6	-	41.9	302
PTSQ - 46 MMBF	**DISTRICT VOLUME**	3.30	66.45	99.83	21.39	69.61	260.6	18.66	1.66	21.60	0.00	41.91	302
	YRS.	0.07	1.44	2.17	0.46	1.51	5.66	0.41	0.04	0.47	0.00	0.91	6.58

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	530.95	9.81	509.97	9.47	447.18	8.26	178.86	3.31	178.81	3.30
2	Ketchikan - Misty Ranger District	16,153.73	295.27	14,750.29	272.08	9,521.65	174.24	3,633.69	66.45	3,633.64	66.45
3	Petersburg Ranger District	22,444.61	385.50	22,444.25	385.50	15,315.10	253.54	6,013.50	99.83	6,013.50	99.83
4	Thorne Bay Ranger District	4,980.59	83.41	4,946.69	82.95	3,224.36	53.47	1,289.74	21.39	1,289.74	21.39
5	Wrangell Ranger District	18,408.18	299.89	15,861.54	252.68	11,114.85	174.06	4,444.84	69.61	4,444.84	69.61
6	Hoonah Ranger District	4,231.78	59.05	4,221.08	58.86	3,353.35	46.64	1,341.34	18.66	1,341.34	18.66
7	Juneau Ranger District	1,381.51	17.21	370.27	6.67	247.08	4.14	98.83	1.66	98.83	1.66
8	Sitka Ranger District	5,764.51	83.29	5,339.76	78.27	3,753.01	53.99	1,501.20	21.60	1,501.20	21.60
9	Yakutat Ranger District	3,453.64	43.43								

NEGATIVE VALUE VCUs

ALTERNATIVE #4

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	26,272.9	26,099.0	47,795.8	11,141.7	42,042.6	153,351.9	26,712.8	39,441.7	36,752.2	3,359.8	106,266.4	259,618
	TOTAL VOLUME	473.5	469.5	786.9	198.4	684.1	2,612.5	378.4	550.2	497.5	42.2	1,468.3	4,081
													-
PHASE 1	TOTAL ACRES	8,269.9	26,056.9	39,196.6	7,306.3	24,341.7	105,171.4	19,684.3	4,427.7	31,267.7	-	55,379.7	160,551
	TOTAL VOLUME	145.6	468.7	668.5	130.1	387.6	1,800.5	269.2	81.3	425.2	-	775.7	2,576
													-
AFTER SUITABILITY	TOTAL ACRES	5,309.0	14,884.8	24,731.6	4,925.6	17,064.4	66,915.5	14,411.4	3,362.0	21,912.7	-	39,686.1	106,602
	TOTAL VOLUME	92.8	265.9	403.7	87.0	267.5	1,116.9	192.5	59.9	294.3	-	546.6	1,664
													-
AFTER REG. CLASS	TOTAL ACRES	2,099.8	5,784.0	9,577.6	1,952.3	6,815.2	26,228.9	5,760.2	1,344.8	8,720.6	-	15,825.6	42,055
	TOTAL VOLUME	36.8	103.2	156.4	34.4	106.8	437.7	76.9	23.9	117.1	-	218.0	656
													-
AFTER LEGACY	TOTAL ACRES	2,099.7	5,783.4	9,577.6	1,952.3	6,815.2	26,228.2	5,760.2	1,344.8	8,625.6	-	15,730.6	41,959
	TOTAL VOLUME	36.8	103.2	156.4	34.4	106.8	437.6	76.9	23.9	115.9	-	216.8	654
PTSQ - 46 MMBF	**DISTRICT VOLUME**	36.77	103.21	156.40	34.45	106.83	437.6	76.95	23.94	115.92	0.00	216.81	654
	YRS.	0.80	2.24	3.40	0.75	2.32	9.51	1.67	0.52	2.52	0.00	4.71	9.43

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	26,272.86	473.50	8,269.88	145.59	5,309.03	92.82	2,099.75	36.77	2,099.70	36.77
2	Ketchikan - Misty Ranger District	26,098.96	469.54	26,056.94	468.67	14,884.83	265.93	5,784.02	103.22	5,783.39	103.21
3	Petersburg Ranger District	47,795.77	786.93	39,196.55	668.46	24,731.63	403.66	9,577.62	156.40	9,577.62	156.40
4	Thorne Bay Ranger District	11,141.72	198.44	7,306.32	130.09	4,925.62	87.03	1,952.28	34.45	1,952.28	34.45
5	Wrangell Ranger District	42,042.55	684.05	24,341.67	387.64	17,064.36	267.49	6,815.21	106.83	6,815.21	106.83
6	Hoonah Ranger District	26,712.77	378.43	19,684.27	269.20	14,411.43	192.51	5,760.21	76.95	5,760.21	76.95
7	Juneau Ranger District	39,441.65	550.22	4,427.70	81.28	3,362.03	59.86	1,344.81	23.94	1,344.81	23.94
8	Sitka Ranger District	36,752.21	497.46	31,267.72	425.20	21,912.68	294.27	8,720.61	117.15	8,625.55	115.92
9	Yakutat Ranger District	3,359.76	42.18								

	NEGATIVE VALUE VCUs															
ALTERNATIVE #5																
		SOUTHERN RANGER DISTRICTS								NORTHERN RANGER DISTRICTS						TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL		TOTAL		HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL		
GROSS POG	TOTAL ACRES	29,549.3	32,382.8	51,890.3	11,863.7	48,027.3		173,713.6		27,625.9	45,129.7	38,493.1	3,453.6	114,702.3		288,416
	TOTAL VOLUME	531.7	582.6	847.2	214.0	791.3		2,966.8		389.0	629.7	523.7	43.4	1,585.8		4,553
																-
PHASE 1	TOTAL ACRES	9,525.9	27,582.1	40,068.6	8,028.3	26,971.5		112,176.4		20,597.4	5,972.4	32,869.2	-	59,439.0		171,615
	TOTAL VOLUME	169.7	497.2	683.4	145.6	436.4		1,932.3		279.8	102.4	449.6	-	831.8		2,764
																-
AFTER SUITABILITY	TOTAL ACRES	6,273.1	15,790.5	25,281.2	5,516.1	18,266.9		71,127.7		14,672.5	4,251.3	22,824.0	-	41,747.8		112,875
	TOTAL VOLUME	111.2	284.5	413.2	99.6	288.7		1,197.2		195.7	71.4	308.0	-	575.2		1,772
																-
AFTER REG. CLASS	TOTAL ACRES	2,465.9	6,083.8	9,770.5	2,145.2	7,189.7		27,655.0		5,845.3	1,648.6	9,065.1	-	16,559.0		44,214
	TOTAL VOLUME	43.8	109.6	159.7	38.6	113.4		465.2		78.0	28.2	122.3	-	228.5		694
																-
AFTER LEGACY	TOTAL ACRES	2,463.8	6,083.2	9,770.5	2,145.2	7,189.7		27,652.2		5,845.3	1,648.6	8,970.1	-	16,464.0		44,116
	TOTAL VOLUME	43.8	109.6	159.7	38.6	113.4		465.1		78.0	28.2	121.1	-	227.3		692
PTSQ - 46 MMBF	**DISTRICT VOLUME**	43.77	109.55	159.71	38.65	113.43		465.1		78.01	28.15	121.09	0.00	227.26		692
	YRS.	0.95	2.38	3.47	0.84	2.47		10.11		1.70	0.61	2.63	0.00	4.94		15.05

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	29,549.33	531.68	9,525.87	169.70	6,273.10	111.21	2,465.90	43.81	2,463.77	43.77
2	Ketchikan - Misty Ranger District	32,382.82	582.61	27,582.11	497.19	15,790.48	284.49	6,083.80	109.57	6,083.18	109.55
3	Petersburg Ranger District	51,890.34	847.16	40,068.62	683.41	25,281.18	413.21	9,770.45	159.71	9,770.45	159.71
4	Thorne Bay Ranger District	11,863.74	213.96	8,028.33	145.60	5,516.07	99.56	2,145.16	38.65	2,145.16	38.65
5	Wrangell Ranger District	48,027.35	791.35	26,971.45	436.39	18,266.89	288.70	7,189.67	113.43	7,189.67	113.43
6	Hoonah Ranger District	27,625.90	388.98	20,597.41	279.76	14,672.47	195.70	5,845.34	78.01	5,845.34	78.01
7	Juneau Ranger District	45,129.68	629.66	5,972.42	102.42	4,251.31	71.44	1,648.59	28.15	1,648.59	28.15
8	Sitka Ranger District	38,493.06	523.70	32,869.19	449.58	22,823.98	308.02	9,065.11	122.32	8,970.06	121.09
9	Yakutat Ranger District	3,453.64	43.43								

NEGATIVE VALUE VCUs

ALTERNATIVE #5 T77 Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	11,700.2	32,251.1	58,378.3	0.0	14,701.8	117,031.4	3,281.9	23,535.1	35,617.1	8.9	62,443.0	179,474
	TOTAL VOLUME	231.9	599.7	1,003.0	0.0	249.1	2,083.8	50.3	354.5	487.4	0.1	892.2	2,976
													-
PHASE 1	TOTAL ACRES	3,490.8	0.0	28,367.5	0.0	7,904.8	39,763.1	-	-	6,923.2	-	6,923.2	46,686
	TOTAL VOLUME	75.3	0.0	486.7	0.0	132.5	694.5	-	-	94.1	-	94.1	789
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	53.7	53.7	-	-	-	-	-	54
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.7	0.7	-	-	-	-	-	1
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	21.5	21.5	-	-	-	-	-	21
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.3	0.3	-	-	-	-	-	0
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	21.5	21.5	-	-	-	-	-	21
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.3	0.3	-	-	-	-	-	0
PTSQ - 46 MMBF	**DISTRICT VOLUME**	0.00	0.00	0.00	0.00	0.29	0.3	0.00	0.00	0.00	0.00	0.00	0
	YRS.	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	11,700.24	231.93	3,490.77	75.29						
2	Ketchikan - Misty Ranger District	32,251.07	599.73								
3	Petersburg Ranger District	58,378.27	1,003.03	28,367.48	486.70						
4	Thorne Bay Ranger District										
5	Wrangell Ranger District	14,701.80	249.12	7,904.81	132.52	53.74	0.74	21.49	0.29	21.49	0.29
6	Hoonah Ranger District	3,281.93	50.26								
7	Juneau Ranger District	23,535.12	354.52								
8	Sitka Ranger District	35,617.07	487.40	6,923.20	94.10						
9	Yakutat Ranger District	8.89	0.07								

NEGATIVE VALUE VCUs

ALTERNATIVE #5 TNC/AUD Priority Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	43,996.4	48,719.9	109,045.6	12,817.5	65,800.1	280,379.5	3,281.9	87,626.7	46,765.1	-	137,673.6	418,053
	TOTAL VOLUME	797.4	901.1	1,822.4	237.3	1,155.1	4,913.2	50.3	1,225.1	627.2	-	1,902.5	6,816
													-
PHASE 1	TOTAL ACRES	13,714.4	11,066.7	47,237.5	8,131.5	27,802.0	107,952.1	-	0.0	6,639.0	-	6,639.0	114,591
	TOTAL VOLUME	259.9	201.0	803.2	150.8	476.4	1,891.2	-	0.0	88.3	-	88.3	1,980
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	113.9	113.9	-	-	-	-	-	114
	TOTAL VOLUME	0.0	0.0	0.0	0.0	2.0	2.0	-	-	-	-	-	2
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	39.4	39.4	-	-	-	-	-	39
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.7	0.7	-	-	-	-	-	1
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	39.4	39.4	-	-	-	-	-	39
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.7	0.7	-	-	-	-	-	1
PTSQ - 46 MMBF	**DISTRICT VOLUME**	0.00	0.00	0.00	0.00	0.66	0.7	0.00	0.00	0.00	0.00	0.00	1
	YRS.	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	43,996.42	797.39	13,714.43	259.85						
2	Ketchikan - Misty Ranger District	48,719.91	901.06	11,066.69	201.02	0.00	0.00	0.00	0.00	0.00	0.00
3	Petersburg Ranger District	109,045.61	1,822.39	47,237.48	803.19						
4	Thorne Bay Ranger District	12,817.47	237.27	8,131.49	150.76						
5	Wrangell Ranger District	65,800.12	1,155.05	27,802.02	476.37	113.91	1.98	39.35	0.66	39.35	0.66
6	Hoonah Ranger District	3,281.92	50.26								
7	Juneau Ranger District	87,626.66	1,225.12	0.01	0.00						
8	Sitka Ranger District	46,765.05	627.17	6,638.99	88.32						
9	Yakutat Ranger District										

PHASE 2 & 3 POSITIVE VALUE VCUs

ALTERNATIVE #2

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY /RANGELL		TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	5,047.9	1,035.1	1,916.5	2,240.7	2,126.9	12,367.2	-	-	-	2,257.5	2,257.5	14,625
	TOTAL VOLUME	89.2	18.2	32.0	45.7	36.6	221.8	-	-	-	53.0	53.0	275
													-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	13.7	0.0	0.0	13.7	-	-	-	2,257.5	2,257.5	2,271
	TOTAL VOLUME	0.0	0.0	0.2	0.0	0.0	0.2	-	-	-	53.0	53.0	53
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	5,047.94	89.22								
2	Ketchikan - Misty Ranger District	1,035.11	18.24								
3	Petersburg Ranger District	1,916.53	32.03	13.69	0.24						
4	Thorne Bay Ranger District	2,240.69	45.73								
5	Wrangell Ranger District	2,126.89	36.61								
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	2,257.50	52.97	2,257.50	52.97						

PHASE 2 & 3 POSITIVE VALUE VCUs

ALTERNATIVE #3

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	10,689.0	10,483.6	5,615.2	17,111.2	4,710.8	48,609.6	209.5	-	-	9,558.0	9,767.6	58,377
	TOTAL VOLUME	189.0	191.0	91.6	330.1	78.5	880.1	2.7	-	-	274.7	277.4	1,158
													-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	128.8	544.9	0.0	673.7	-	-	-	9,558.0	9,558.0	10,232
	TOTAL VOLUME	0.0	0.0	2.6	11.2	0.0	13.8	-	-	-	274.7	274.7	289
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClass Volume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	10,688.95	188.95								
2	Ketchikan - Misty Ranger District	10,483.57	190.98								
3	Petersburg Ranger District	5,615.18	91.56	128.81	2.63						
4	Thorne Bay Ranger District	17,111.17	330.09	544.90	11.17						
5	Wrangell Ranger District	4,710.76	78.49								
6	Hoonah Ranger District	209.54	2.69								
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,558.03	274.75	9,558.03	274.75						

PHASE 2 & 3 POSITIVE VALUE VCUs

ALTERNATIVE #4

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	12,601.2	15,531.3	22,094.5	25,157.5	8,071.8	83,456.2	1,169.2	-	-	9,449.2	10,618.4	94,075
	TOTAL VOLUME	223.9	284.3	354.8	482.5	136.8	1,482.2	16.6	-	-	271.5	288.1	1,770
													-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	5,421.0	1,173.5	0.0	6,594.5	-	-	-	9,449.2	9,449.2	16,044
	TOTAL VOLUME	0.0	0.0	89.8	22.9	0.0	112.7	-	-	-	271.5	271.5	384
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	12,601.21	223.91								
2	Ketchikan - Misty Ranger District	15,531.26	284.33								
3	Petersburg Ranger District	22,094.51	354.75	5,420.99	89.82						
4	Thorne Bay Ranger District	25,157.46	482.47	1,173.47	22.86						
5	Wrangell Ranger District	8,071.80	136.78								
6	Hoonah Ranger District	1,169.20	16.63								
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,449.18	271.51	9,449.18	271.51						

		PHASE 2 & 3 POSITIVE VALUE VCUs														
ALTERNATIVE #5																
		SOUTHERN RANGER DISTRICTS								NORTHERN RANGER DISTRICTS						TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL		TOTAL		HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL		
GROSS POG	TOTAL ACRES	12,605.3	15,528.2	22,207.2	25,194.5	8,076.4		83,611.6		1,169.2	-	-	9,558.0	10,727.2		94,339
	TOTAL VOLUME	224.0	284.3	356.3	478.5	136.9		1,479.9		16.6	-	-	274.7	291.4		1,771
																-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	5,421.0	1,173.5	0.0		6,594.5		-	-	-	9,558.0	9,558.0		16,152
	TOTAL VOLUME	0.0	0.0	89.8	22.9	0.0		112.7		-	-	-	274.7	274.7		387
																-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
																-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
																-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0		0.0		-	-	-	-	-		-
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00		0.0		0.00	0.00	0.00	0.00	0.00		0
	YRS.	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0		0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	12,605.34	224.00								
2	Ketchikan - Misty Ranger District	15,528.20	284.26								
3	Petersburg Ranger District	22,207.17	356.30	5,420.99	89.82						
4	Thorne Bay Ranger District	25,194.51	478.46	1,173.47	22.86						
5	Wrangell Ranger District	8,076.41	136.88								
6	Hoonah Ranger District	1,169.20	16.63								
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District	9,558.03	274.75	9,558.03	274.75						

PHASE 2 & 3 POSITIVE VALUE VCUs

ALTERNATIVE #5 T77 Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	0.0	0.0	3,285.1	270.9	5,038.4	8,594.4	-	-	-	-	-	8,594
	TOTAL VOLUME	0.0	0.0	66.3	4.8	84.1	155.2	-	-	-	-	-	155
													-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	0.4	0.0	0.0	0.4	-	-	-	-	-	0
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	0
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District										
2	Ketchikan - Misty Ranger District										
3	Petersburg Ranger District	3,285.12	66.29	0.41	0.01						
4	Thorne Bay Ranger District	270.88	4.84	0.01	0.00						
5	Wrangell Ranger District	5,038.37	84.09								
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District										

PHASE 2 & 3 POSITIVE VALUE VCUs

ALTERNATIVE #5 TNC/AUD Priority Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	0.0	0.8	699.2	1,946.0	5,038.3	7,684.3	-	-	-	-	-	7,684
	TOTAL VOLUME	0.0	0.0	12.5	38.6	84.1	135.1	-	-	-	-	-	135
													-
IN PHASE 2 OR 3	TOTAL ACRES	0.0	0.0	0.0	503.6	0.0	503.6	-	-	-	-	-	504
	TOTAL VOLUME	0.0	0.0	0.0	9.1	0.0	9.1	-	-	-	-	-	9
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
													-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
PTSQ - 46 MMBF		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	0.01	0.00								
2	Ketchikan - Misty Ranger District	0.77	0.02								
3	Petersburg Ranger District	699.22	12.48	0.00	0.00						
4	Thorne Bay Ranger District	1,946.01	38.56	503.59	9.08						
5	Wrangell Ranger District	5,038.29	84.09								
6	Hoonah Ranger District										
7	Juneau Ranger District										
8	Sitka Ranger District										
9	Yakutat Ranger District										

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #2

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	289.9	3,548.6	6,295.6	1,102.4	2,717.5	13,954.0	621.8	1,268.6	770.4	92.7	2,753.5	16,707
	TOTAL VOLUME	5.3	66.9	117.2	18.6	41.0	249.1	8.4	16.2	9.7	3.0	37.3	286
													-
IN PHASE 2 OR 3	TOTAL ACRES	14.1	0.0	0.4	0.0	0.0	14.5	9.5	898.3	24.8	92.7	1,025.3	1,040
	TOTAL VOLUME	0.2	0.0	0.0	0.0	0.0	0.2	0.2	9.6	0.3	3.0	13.1	13
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	434.5	-	-	434.5	434
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	3.3	-	-	3.3	3
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-	92.0	92
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.70	0.00	0.00	0.70	1
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	289.90	5.29	14.13	0.19						
2	Ketchikan - Misty Ranger District	3,548.62	66.91								
3	Petersburg Ranger District	6,295.58	117.24	0.36	0.00						
4	Thorne Bay Ranger District	1,102.37	18.62								
5	Wrangell Ranger District	2,717.53	41.04								
6	Hoonah Ranger District	621.78	8.39	9.47	0.17						
7	Juneau Ranger District	1,268.61	16.24	898.34	9.58	434.50	3.30	91.96	0.70	91.96	0.70
8	Sitka Ranger District	770.38	9.66	24.76	0.28						
9	Yakutat Ranger District	92.72	3.03	92.72	3.03						

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #3

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	531.0	16,153.7	22,444.6	4,980.6	18,408.2	62,518.1	4,231.8	1,381.5	5,764.5	3,453.6	14,831.4	77,349
	TOTAL VOLUME	9.8	295.3	385.5	83.4	299.9	1,073.9	59.1	17.2	83.3	43.4	203.0	1,277
													-
IN PHASE 2 OR 3	TOTAL ACRES	21.0	1,403.4	0.4	33.9	2,546.6	4,005.3	10.7	1,011.2	424.8	3,453.6	4,900.3	8,906
	TOTAL VOLUME	0.3	23.2	0.0	0.5	47.2	71.2	0.2	10.5	5.0	43.4	59.2	130
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	434.5	-	-	434.5	434
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	3.3	-	-	3.3	3
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-	92.0	92
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.70	0.00	0.00	0.70	1
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	530.95	9.81	20.98	0.34						
2	Ketchikan - Misty Ranger District	16,153.73	295.27	1,403.44	23.20						
3	Petersburg Ranger District	22,444.61	385.50	0.36	0.00						
4	Thorne Bay Ranger District	4,980.59	83.41	33.89	0.47						
5	Wrangell Ranger District	18,408.18	299.89	2,546.64	47.22						
6	Hoonah Ranger District	4,231.78	59.05	10.70	0.19						
7	Juneau Ranger District	1,381.51	17.21	1,011.25	10.55	434.50	3.30	91.96	0.70	91.96	0.70
8	Sitka Ranger District	5,764.51	83.29	424.75	5.02						
9	Yakutat Ranger District	3,453.64	43.43	3,453.64	43.43						

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #4

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	26,272.9	26,099.0	47,795.8	11,141.7	42,042.6	153,351.9	26,712.8	39,441.7	36,752.2	3,359.8	106,266.4	259,618
	TOTAL VOLUME	473.5	469.5	786.9	198.4	684.1	2,612.5	378.4	550.2	497.5	42.2	1,468.3	4,081
													-
IN PHASE 2 OR 3	TOTAL ACRES	17,629.1	42.0	8,599.2	3,835.4	17,700.9	47,806.7	7,028.5	35,013.9	5,484.5	3,359.8	50,886.7	98,693
	TOTAL VOLUME	322.2	0.9	118.5	68.4	296.4	806.3	109.2	468.9	72.3	42.2	692.6	1,499
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	434.5	-	-	434.5	434
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	3.3	-	-	3.3	3
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-	92.0	92
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.70	0.00	0.00	0.70	1
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	26,272.86	473.50	17,629.13	322.18	0.00	0.00				
2	Ketchikan - Misty Ranger District	26,098.96	469.54	42.02	0.87						
3	Petersburg Ranger District	47,795.77	786.93	8,599.22	118.47						
4	Thorne Bay Ranger District	11,141.72	198.44	3,835.41	68.36						
5	Wrangell Ranger District	42,042.55	684.05	17,700.88	296.41						
6	Hoonah Ranger District	26,712.77	378.43	7,028.49	109.22						
7	Juneau Ranger District	39,441.65	550.22	35,013.95	468.93	434.50	3.30	91.96	0.70	91.96	0.70
8	Sitka Ranger District	36,752.21	497.46	5,484.49	72.26						
9	Yakutat Ranger District	3,359.76	42.18	3,359.76	42.18						

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #5

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	29,549.3	32,382.8	51,890.3	11,863.7	48,027.3	173,713.6	27,625.9	45,129.7	38,493.1	3,453.6	114,702.3	288,416
	TOTAL VOLUME	531.7	582.6	847.2	214.0	791.3	2,966.8	389.0	629.7	523.7	43.4	1,585.8	4,553
													-
IN PHASE 2 OR 3	TOTAL ACRES	19,649.6	4,800.6	11,821.7	3,835.4	21,055.9	61,163.2	7,028.5	39,104.7	5,623.9	3,453.6	55,210.7	116,374
	TOTAL VOLUME	356.2	85.4	163.7	68.4	355.0	1,028.7	109.2	526.8	74.1	43.4	753.6	1,782
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	434.5	-	-	434.5	434
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	3.3	-	-	3.3	3
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-	92.0	92
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	0.0	0.0	0.0	0.0	0.0	-	92.0	-	-		-
	TOTAL VOLUME	0.0	0.0	0.0	0.0	0.0	0.0	-	0.7	-	-	0.7	1
PTSQ - 46 MMBF		0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.70	0.00	0.00	0.70	1
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	29,549.33	531.68	19,649.62	356.24	0.00	0.00				
2	Ketchikan - Misty Ranger District	32,382.82	582.61	4,800.57	85.42						
3	Petersburg Ranger District	51,890.34	847.16	11,821.72	163.75						
4	Thorne Bay Ranger District	11,863.74	213.96	3,835.41	68.36						
5	Wrangell Ranger District	48,027.35	791.35	21,055.90	354.96						
6	Hoonah Ranger District	27,625.90	388.98	7,028.49	109.22						
7	Juneau Ranger District	45,129.68	629.66	39,104.71	526.84	434.50	3.30	91.96	0.70	91.96	0.70
8	Sitka Ranger District	38,493.06	523.70	5,623.87	74.12						
9	Yakutat Ranger District	3,453.64	43.43	3,453.64	43.43						

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #5 T77 Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	11,700.2	32,251.1	58,378.3	0.0	14,701.8	117,031.4	3,281.9	23,535.1	35,617.1	8.9	62,443.0	179,474
	TOTAL VOLUME	231.9	599.7	1,003.0	0.0	249.1	2,083.8	50.3	354.5	487.4	0.1	892.2	2,976
													-
IN PHASE 2 OR 3	TOTAL ACRES	7,627.1	32,251.1	30,010.8	0.0	6,797.0	76,685.9	3,281.9	23,535.1	28,693.9	8.9	55,519.8	132,206
	TOTAL VOLUME	147.3	599.7	516.3	0.0	116.6	1,379.9	50.3	354.5	393.3	0.1	798.1	2,178
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	20.7	151.4	0.0	0.0	172.1	-	-	5.2	-	5.2	177
	TOTAL VOLUME	0.0	0.6	3.4	0.0	0.0	4.0	-	-	0.1	-	0.1	4
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	8.3	60.5	0.0	0.0	68.8	-	-	2.1	-	2.1	71
	TOTAL VOLUME	0.0	0.3	1.4	0.0	0.0	1.6	-	-	0.0	-	0.0	2
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	8.3	60.5	0.0	0.0	68.8	-	-	2.1	-		69
	TOTAL VOLUME	0.0	0.3	1.4	0.0	0.0	1.6	-	-	0.0	-	0.0	2
PTSQ - 46 MMBF		0.00	0.25	1.36	0.00	0.00	1.6	0.00	0.00	0.04	0.00	0.04	2
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	11,700.24	231.93	7,627.10	147.27						
2	Ketchikan - Misty Ranger District	32,251.07	599.73	32,251.07	599.73	20.74	0.63	8.30	0.25	8.30	0.25
3	Petersburg Ranger District	58,378.27	1,003.03	30,010.79	516.33	151.35	3.40	60.54	1.36	60.54	1.36
4	Thorne Bay Ranger District										
5	Wrangell Ranger District	14,701.80	249.12	6,796.99	116.60						
6	Hoonah Ranger District	3,281.93	50.26	3,281.93	50.26						
7	Juneau Ranger District	23,535.12	354.52	23,535.12	354.52						
8	Sitka Ranger District	35,617.07	487.40	28,693.87	393.30	5.21	0.09	2.08	0.04	2.08	0.04
9	Yakutat Ranger District	8.89	0.07	8.89	0.07						

PHASE 2 & 3 NEGATIVE VALUE VCUs

ALTERNATIVE #5 TNC/AUD Priority Areas Only

		SOUTHERN RANGER DISTRICTS						NORTHERN RANGER DISTRICTS					TONGASS
		CRAIG	KTN-MISTY	PETERSBURG	THORNE BAY	WRANGELL	TOTAL	HOONAH	JUNEAU	SITKA	YAKUTAT	TOTAL	
GROSS POG	TOTAL ACRES	43,996.4	48,719.9	109,045.6	12,817.5	65,800.1	280,379.5	3,281.9	87,626.7	46,765.1	-	137,673.6	418,053
	TOTAL VOLUME	797.4	901.1	1,822.4	237.3	1,155.1	4,913.2	50.3	1,225.1	627.2	-	1,902.5	6,816
													-
IN PHASE 2 OR 3	TOTAL ACRES	28,817.3	37,653.2	61,808.1	4,686.0	37,998.1	170,962.7	3,281.9	87,626.6	40,126.1	-	131,034.6	301,997
	TOTAL VOLUME	512.0	700.0	1,019.2	86.5	678.7	2,996.4	50.3	1,225.1	538.9	-	1,814.2	4,811
													-
AFTER SUITABILITY	TOTAL ACRES	0.0	34.0	172.1	0.0	0.4	206.5	-	-	5.2	-	5.2	212
	TOTAL VOLUME	0.0	0.9	3.8	0.0	0.0	4.7	-	-	0.1	-	0.1	5
													-
AFTER REG. CLASS	TOTAL ACRES	0.0	12.4	68.8	0.0	0.2	81.4	-	-	2.1	-	2.1	83
	TOTAL VOLUME	0.0	0.3	1.5	0.0	0.0	1.9	-	-	0.0	-	0.0	2
												-	-
AFTER LEGACY	TOTAL ACRES	0.0	12.4	68.8	0.0	0.2	81.4	-	-	2.1	-		81
	TOTAL VOLUME	0.0	0.3	1.5	0.0	0.0	1.9	-	-	0.0	-	0.0	2
PTSQ - 46 MMBF		0.00	0.34	1.53	0.00	0.00	1.9	0.00	0.00	0.04	0.00	0.04	2
	YRS.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Order	DISTRICTNAME	GrossAcres	GrossVolume	PhaseAcres	PhaseVolume	SuitAcres	SuitVolume	RegClass_Acres	RegClassVolume	LegVCU_Acres	LegVCUVolume
1	Craig Ranger District	43,996.42	797.39	28,817.31	511.96						
2	Ketchikan - Misty Ranger District	48,719.91	901.06	37,653.22	700.05	34.05	0.90	12.38	0.34	12.38	0.34
3	Petersburg Ranger District	109,045.61	1,822.39	61,808.14	1,019.20	172.12	3.83	68.84	1.53	68.84	1.53
4	Thorne Bay Ranger District	12,817.47	237.27	4,685.97	86.51						
5	Wrangell Ranger District	65,800.12	1,155.05	37,998.06	678.68	0.38	0.01	0.15	0.00	0.15	0.00
6	Hoonah Ranger District	3,281.92	50.26	3,281.92	50.26						
7	Juneau Ranger District	87,626.66	1,225.12	87,626.65	1,225.12						
8	Sitka Ranger District	46,765.05	627.17	40,126.06	538.85	5.21	0.09	2.08	0.04	2.08	0.04
9	Yakutat Ranger District										

GROSS ACRES w/ T77 & TNC/AUD shown	ALT. 2		ALT. 3		ALT. 4		ALT. 5							
							D. LUD		T77		TNC		ALT. 6 TOTAL	
S. RANGER DISTRICTS	ACRES	VOLUME	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume
CRAIG	7,005	133	13,193	243	40,814	741	33,828	597	11,675	231	43,929	796	89,432	1,624
KTN-MISTY	4,576	85	19,704	368	41,552	753	15,643	268	32,132	597	48,595	898	96,370	1,764
PETERSBURG	13,722	246	33,540	573	74,164	1,219	15,282	193	61,467	1,065	109,426	1,828	186,174	3,086
THORNE BAY	4,354	81	24,158	452	37,940	708	36,703	686	264	5	14,731	275	51,698	966
WRANGELL	12,373	202	26,364	442	60,009	988	39,845	652	19,665	332	70,548	1,234	130,057	2,218
S. DISTRICTS TOTAL	42,030	747	116,959	2,078	254,479	4,409	141,301	2,396	125,202	2,230	287,228	5,032	553,731	9,658

	ALT. 2		ALT. 3		ALT. 4		ALT. 5							
							D. LUD		T77		TNC		ALT. 6 TOTAL	
N. RANGER DISTRICTS	ACRES	VOLUME	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume
HOONAH	625	8	4443	62	27885	395	25,513	355	3,282	50	3,282	50	32,077	456
JUNEAU	849	13	849	13	39024	547	21,146	272	23,535	355	88,036	1,230	132,717	1,856
SITKA	1222	16	5880	86	37155	503	10,577	140	35,607	487	46,755	627	92,940	1,254
YAKUTAT	2357	56	2357	56	12816	314	12,999	318	21	0	12	0	13,033	319
N. DISTRICTS TOTAL	5053	94	13529	217	116880	1759	70,236	1,085	62,446	892	138,086	1,907	270,767	3,885

FOREST TOTALS	47,083	840	130,488	2,295	371,359	6,168	211,537	3,481	187,648	3,123	425,314	6,939	824,498	13,543

GROSS ACRES INCLUDE ALL ACRES OF POG - SUITABILITY AND/OR AVAILABILITY NOT CONSIDERED

UNDER ALT.6 THE ACRES & VOLUME THE NUMBERS IN D. LUD + T77 + TNC/AUD = ALT. 6 TOTAL

	ALT. 2		ALT. 3		ALT. 4		ALT. 5 D. LUD	
NGER DISTRICTS	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES
CRAIG	7,005	4,400	13,193	8,300	40,814	14,400	33,828	16,300
KTN-MISTY	4,576	3,300	19,704	11,300	41,552	23,400	15,643	24,400
ETERSBURG	13,722	3,900	33,540	17,200	74,164	36,000	15,281	37,400
THORNE BAY	4,354	1,900	24,158	13,700	37,940	20,300	36,703	21,200
WRANGELL	12,373	3,500	26,364	9,900	60,009	22,800	39,844	24,000
ISTRICTS TOTAL	42,030	17,000	116,959	60,400	254,479	116,900	141,299	123,300

	ALT. 2		ALT. 3		ALT. 4		ALT. 5 D. LUD	
NGER DISTRICTS	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES	AFA ACRES	FS ACRES
HOONAH	625	400	4443	3500	27885	15000	25513	15600
JUNEAU	849	300	849	300	39024	3400	21146	4400
SITKA	1222	400	5880	3600	37155	22300	10578	23300
YAKUTAT	2357	0	2357	0	12816	0	13000	0
ISTRICTS TOTAL	5053	1100	13529	7400	116880	40700	70237	43300
REST TOTALS	47,083	18,100	130,488	67,800	371,359	157,600	211,536	166,600

Old Growth

DISTRICTNAME	Alt2_acres	Alt2_vol	Alt3_acres	Alt3_vol	Alt4_acres	Alt4_vol	Alt5T_acres	Alt5T_vol	Alt5T77_acres	Alt5T77_Vol	Alt5TNC_Acres	Alt5TNC_Vol	N_or_S
Craig Ranger District	7,004.99	133.11	13,193.09	243.06	40,814.19	741.07	89,432.27	1,624.27	11,674.78	231.18	43,929.02	796.02	S
Ketchikan - Misty Ranger District	4,575.68	84.91	19,703.79	368.17	41,552.36	752.61	96,370.20	1,763.66	32,131.71	597.11	48,595.04	898.40	S
Petersburg Ranger District	13,721.99	245.67	33,540.26	573.08	74,163.68	1,218.60	186,173.63	3,086.33	61,466.72	1,064.87	109,425.54	1,828.09	S
Thorne Bay Ranger District	4,354.47	80.64	24,157.99	452.25	37,939.81	708.48	51,698.27	965.57	264.04	4.69	14,730.77	275.22	S
Wrangell Ranger District	12,372.59	202.19	26,363.70	441.52	60,008.81	987.99	130,056.91	2,217.95	19,664.82	332.18	70,547.68	1,234.19	S
Hoonah Ranger District	624.54	8.44	4,442.97	61.77	27,885.01	395.11	32,077.31	455.88	3,281.93	50.26	3,281.92	50.26	N
Juneau Ranger District	849.42	13.06	849.42	13.06	39,024.02	547.05	132,717.27	1,855.88	23,535.12	354.52	88,035.88	1,229.63	N
Sitka Ranger District	1,221.63	16.08	5,879.65	85.76	37,155.03	503.28	92,939.83	1,254.37	35,607.27	487.22	46,755.26	627.00	N
Yakutat Ranger District	2,357.21	56.04	2,357.21	56.04	12,815.94	313.73	13,033.04	318.64	21.34	0.46	12.47	0.39	N

Young Growth

DISTRICTNAME	Alt2_acres	Alt2_vol	Alt3_acres	Alt3_vol	Alt4_acres	Alt4_vol	Alt5T_acres	Alt5T_vol	Alt5T77_acres	Alt5T77_Vol	Alt5TNC_Acres	Alt5TNC_Vol	N_or_S
Craig Ranger District	10.69	0.31	35.30	0.69	75.23	1.48	167.00	3.49	25.47	0.75	68.11	1.39	S
Ketchikan - Misty Ranger District	8.05	0.23	19.56	0.46	109.18	1.80	370.74	6.34	102.14	2.26	125.87	2.68	S
Petersburg Ranger District	26.53	0.36	56.97	0.78	62.51	0.94	364.53	7.46	211.58	4.65	301.97	6.52	S
Thorne Bay Ranger District	54.73	1.53	123.74	2.52	163.49	3.45	170.74	3.66	6.85	0.14	32.95	0.61	S
Wrangell Ranger District	251.47	4.10	367.35	5.69	371.84	5.75	391.05	6.02	81.27	1.11	173.68	3.03	S

	ALT. 2		ALT. 3		ALT. 4		ALT. 5					
							D. LUD		T77		TNC	
	ACRES	VOLUME	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume	ACRES	Volume
S. RANGER DISTRICTS												
CRAIG	4,400.00	118.45	8,300.00	223.44	14,400.00	387.65	16,300.00	438.80				
KTN-MISTY	3,300.00	88.84	11,300.00	304.20	23,400.00	629.93	24,400.00	656.85				
PETERSBURG	3,900.00	104.99	17,200.00	463.02	36,000.00	969.12	37,400.00	1,006.81				
THORNE BAY	1,900.00	51.15	13,700.00	368.80	20,300.00	546.48	21,200.00	570.70				
WRANGELL	3,500.00	94.22	9,900.00	266.51	22,800.00	613.78	24,000.00	646.08				
S. DISTRICTS TOTAL	17,000.00	457.64	60,400.00	1,625.97	116,900.00	3,146.95	123,300.00	3,319.24				
N. RANGER DISTRICTS												
HOONAH	400.00	9.40	3,500.00	82.25	15,000.00	352.50	15,600.00	366.60				
JUNEAU	300.00	7.05	300.00	7.05	3,400.00	79.90	4,400.00	103.40				
SITKA	400.00	9.40	3,600.00	84.60	22,300.00	524.05	23,300.00	547.55				
YAKUTAT	-	-	-	-	-	-	-	-				
N. DISTRICTS TOTAL	1,100.00	25.85	7,400.00	173.90	40,700.00	956.45	43,300.00	1,017.55				
FOREST TOTAL	18,100.00	483.49	67,800.00	1,799.87	157,600.00	4,103.40	166,600.00	4,336.79				

NASF-2015-03
September 15, 2015
www.stateforesters.org

Recommendations for Enhancing the Role of Forests In Climate Change Mitigation and Ecosystem Adaption to Climate Change

A Policy Statement approved by Resolution
by the National Association of State Foresters

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Introduction

Global climate change continues as an issue frequently raised in both political and scientific arenas. In these discussions the role of forests and the products derived from forests are often mentioned.

The National Association of State Foresters (NASF) is comprised of the chief administrators of the forestry agencies in all fifty states, the U.S. Territories and the District of Columbia. These agencies protect, manage, or assist in the protection and management of state, local government and privately owned forest lands totaling over 500 million acres. These efforts produce substantial multiple benefits for society as a whole. Enhancing the role of forests in climate change mitigation and improving adaptability is possible within virtually every program of concern to state foresters. Strengthening, growing and improving these efforts not only addresses climate change, but supports the fundamental mission of state forestry agencies.

Trees absorb carbon dioxide from the air, convert it to wood and release oxygen in the process. The carbon stored in wood represents carbon that does not enter the atmosphere where it would contribute to a "greenhouse effect" that warms the earth. It is estimated that fourteen to fifteen percent of the nation's annual carbon emissions are offset by the additional carbon stored in US forests and wood products each year.[1] Carbon remains stored in wood until it deteriorates, whether it breaks down within a dying tree, a piece of lumber or a piece of paper. Agency programs that increase the extent of forests and tree growth, and promote greater use of wood products, ultimately lead to increased carbon storage.

The carbon released when converting wood to energy is recaptured when replacement wood is grown. In contrast, the use of fossil fuels increases the total amount of carbon in the atmosphere. A panel of scientists, conducting a comprehensive review of current research, have concluded that – over the long term – cumulative emissions of carbon dioxide can be "reduced by substituting forest bio-energy for fossil fuels."[2] Programs that promote economically viable wood energy uses can also play a beneficial role.

Another concern is how ecosystems may change as climate changes. An important characteristic of adaptable ecosystems is that their response to change is more subtle than dramatic. They exhibit a resilience that allows them to experience natural disturbances and long-term shifts in external

[1] US Environmental Protection Agency. 2013. *Inventory of US greenhouse gas emissions and sinks: 1990 – 2011.* EPA 430-R-13-001, Washington, DC.

[2] Miner, R. et al. Forest carbon accounting considerations in US bioenergy policy. *Journal of Forestry.* 112(6): 591 – 606.

influences (such as climate) without creating a rapid, wholesale replacement of the current system. Resilience is fostered by managing for biological diversity at a large scale. Landscape-level focus areas that promote collaboration across diverse public and private ownerships can be an important tool for ensuring adaptable forest ecosystems.

Recommendations

Increase Investment in Urban Forests-

Trees in urban areas store an estimated 770 million tons of carbon. They remove 740 million tons of air pollution each year and save over 2 billion dollars in residential energy costs annually resulting in significant reductions in fossil fuel use. Beyond these benefits to climate change mitigation are a host of other benefits to water quality, noise abatement, wildlife, human health and others.[3] Facilitating the conversion of urban wood into forest products and bio-energy also have positive climate change consequences. Enhanced funding for Urban and Community Forestry Programs would increase the level of all of these benefits.

Improve Forest Health Funding –

Forest health programs administered by the states also contribute carbon benefits. From 2008 to 2012 over forty million acres of forest mortality were caused by insects and diseases.[4] Mortality results in carbon loss and poor forest health reduces the rate of carbon sequestration. Increased funding to better protect forests is essential to their role in climate change mitigation and becomes more so every year as the rate of invasive species occurrence continues to accelerate.

Increase Funding for State and Volunteer Fire Assistance and Reduce the Occurrence of Catastrophic Fire –

The Environmental Protection Agency estimates that wildland fires in the US from the years 2005 through 2013 generated greenhouse gases in an amount totaling 91.3 million metric tons.[5] This is relatively small compared to what was emitted from transportation in just one year (2013) estimated at 1718.4 million metric tons. NASF supports implementation of the "Cohesive Strategy" wherein the wildland fire community has identified three national goals:

- Restore and maintain resilient landscapes using tools such as thinning and prescribed fire
- Assure fire adapted communities through collaborative planning and fuels management

[3] Nowak, D. et al. 2010. *Sustaining America's Urban Trees and Forests.* USDA Forest Service GTR NRS-62, Washington, DC.

[4] USDA Forest Service. 2013. *Major Forest Insect and Disease Conditions in the United States – 2012.* FS-1023, Washington DC.

[5] US Environmental Protection Agency. 2015. *US Greenhouse Gas Inventory Report: 1990-2013.* (Found at http://epa.gov/climatechange/emissions/usinventoryreport.html)

- Provide a safe, effective and efficient wildfire response[6]

Adequately addressing these goals requires additional financial resources and while emissions from wildfire may not be substantial at the national level achieving these goals would still create a climate change benefit.

Reform Federal Land Management Policy –

Since the largest fires occur on federal lands the greatest gains are to be made there. To that end NASF supports policy reform that would accelerate the scope, scale and pace of on-the-ground management of federal forests. Increased accomplishment is the only option for improving federal land resilience at an acreage level that ensures that in the future large catastrophic fires and insect infestations covering millions of acres will not become even more prominent as a result of the stressors brought on by climate change. In addition to treatments to reduce fire risk post-fire rehabilitation and reforestation need to be addressed in a more timely and predictable fashion.

There is also a need to create new administrative, compliance and planning processes that allow more timely response to changing conditions. In addition, funding of fire protection on federal lands needs to not rely on the transfer of funds from other programs – such as private landowner assistance – that are contributing to climate change mitigation.

Establish Favorable Tax Policy –

Tax policy impacting forest owners can influence decisions around retention of forests or conversion to other uses. It is important to maintain current beneficial tax policies such as treating timber sales as a capital gain and expensing management costs yearly. Increasing the cap on the dollar amount exempt from estate taxes would prevent heirs from having to dispose of property to meet a tax liability. And, reinstating the enhanced tax benefits that had been available to landowners who contribute conservation easements on their land would also assist in retaining forest cover.

Support Expansion of Forest Product Markets and Forest Bio-energy Utilization–

In 2007 there was an estimated eight billion tons of greenhouse gases stored in wood products still in use or in landfills.[7] Housing drives the production of solid wood products and manufacturing activity normally drives paper production. The recession of 2008 dampened both markets and slowed the rate of carbon storage in those products. NASF supports encouraging the use of wood over other non-wood building materials and facilitating the expansion of wood industries, as well as increasing the use of woody biomass. Programs implemented by state forestry agencies include forest inventory analyses and providing technical support to existing or emerging natural resource-based businesses. NASF also supports expanding the availability of raw material from national forests, particularly in the western US

[6] USDI/USDA. 2014. *The National Strategy – The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* (Found at http://www.forestsandrangelands.gov/strategy)

[7] USDA Forest Service. 2010. *National Report on Sustainable Forests – 2010.* FS-979, Washington, DC.

as a way to convert more domestic standing timber, reduce fuels and rebalance age classes as well as serving to support the maintenance of forest product markets for private landowners.

Estimates are that between 30 and 80 million dry tons of wood fuel from various sources could be available annually given prices to energy producers that would range from 20 to 40 dollars per ton.[8] As previously cited, scientists have determined that, over the long term, substituting wood bio-energy for fossil fuels results in a net reduction in atmospheric carbon. In 2007 wood generated approximately two percent of all the energy consumed in the US.[9] Thus there is substantial room for growth and with it would come the added benefit of improving markets for private landowners, thereby encouraging retention and management of forests. Certification programs in conjunction with solid data such as that from FIA could play an important role in addressing concerns over sustainability.

Strengthen Research and Forest Inventory and Analysis –

The Forest Inventory and Analysis (FIA) program has tracked carbon stocks since the early 1990s. This is essential data for understanding to what extent forests can offset carbon emissions through sequestration. In addition, inventories look at all ecosystems and can provide early detection in order to implement adaption strategies. NASF considers FIA a priority program. There is also a need for more research to identify the best ways to manage forests for greater resilience and a need to conserve genotypes as ecosystems change in ways that cannot yet be predicted.

In addition, the Forest Products Laboratory and the USDA Wood Education and Resource Center play key roles in expanding forest product and bio-energy opportunities through research and extension. Strengthening their contributions will support climate change mitigation.

Support Markets for Ecosystem Services –

We have in place examples and processes for monetizing the value of carbon stored in forests, but markets for selling this value are limited. The development of this income opportunity for landowners, as well as market opportunities for other ecosystem services such as water quality protection, would make ownership of forests more attractive and retention of forests more likely, as well as increase the storage of carbon thereby mitigating carbon emissions.

[8] US Department of Energy. 2011. *US Billion Ton Update – Biomass Supply for a Bioenergy and Bioproducts Industry.*

[9] USDA Forest Service. *National Report on Sustainable Forests – 2010.*

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Emerging Markets for Wood and Their Positive Impact on Forest Resource Management

A Policy Statement approved by Resolution
by the National Association of State Foresters

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Introduction: Good Markets are Critical to Good Forest Management

In debates over the well-being of the Nation's forests some assume that harvesting trees for wood products represents a potential threat to their sustainability and to the environmental and social benefits forests provide. These concerns are often expressed in relation to new, emerging markets for wood. Using wood for renewable energy has been central to these debates, but other emerging uses are not immune to possible criticism.

The National Association of State Foresters (NASF) is comprised of the heads of the forestry agencies for all fifty states, the District of Columbia and the U.S. territories. Collectively, they promote the proper management and protection of state and privately-owned forests and are frequent collaborators in the management of federally owned forests. NASF ascribes to the view that benefitting from the economic value of forests does not threaten environmental and social values as much as it is key to supporting the delivery of environmental and social benefits.

Keeping forestland as working forests is paramount to the ability of our forests to provide the economic, environmental, and social benefits that are essential to society. In order to retain and properly care for their forests, landowners need sources of revenue. Though forests can provide other forms of economic return - such as from recreation, appreciated land values and ecosystem services - harvesting trees for wood products is the predominate source of revenue for forest owners. This has the added benefit of generating economic opportunities for businesses, whose earnings are often re-invested in the forest. For this reason, NASF believes it is important to support the research and development of new markets for wood fiber. Having highly diverse markets increases the options for management by allowing the landowner to remove those trees of a certain size and/or species under plans that are more likely to result in improved health and vigor.

Within this view, NASF also believes that the institutions and enterprises that provide forest management expertise are equally critical to ensuring sustainability. Wood should be harvested in a carefully planned manner using best management practices that embody sound science, represent community values, continue to provide important environmental benefits and reflect responsible economics. Research and teaching institutions, private landowners, natural resource agencies, consulting foresters, forest owning/managing businesses, natural resource related non-profits and certification bodies all play an important role that must evolve and grow as demand for wood may well increase when new uses emerge.

The Role of Active Management: Economic, Environmental, and Social Benefits to Society

Approximately one-third of the United States is forested, nearly 800 million acres. Of those acres, 56% is privately owned and can be broken down further with 38% owned by families or individuals (299 million acres) and 18% (149 million acres) by larger timber-owning/managing businesses. Of the remaining amount, approximately 33% (265 million acres) are owned by the federal government and 11% (87 million acres) by state or local governments.[1]

Contrasting these percentages is the fact that, of the estimated 12 to 13 billion cubic feet of wood removed from US forests annually, 90% derive from privately owned lands[2] – 57% from lands owned by families or individuals and 33% from larger holdings owned by business.[3] The total volume removed reflects a continuing downward trend from a 1986 high of nearly 20 billion cubic feet. The standing volume of timber in the US continues to increase, with sawtimber-sized trees increasing at a higher rate than poles, saplings or seedlings in the North and South. Since the 1950's total volumes in the US have increased by over 50%.[4]

Volumes increase as stands of trees grow from seedling to sapling to pole and then sawtimber. With these increases, individual trees in the stand face greater competition for water and nutrients. Competition naturally thins a stand to some extent, but not enough to prevent overall tree growth from stagnating as individuals become over-crowded. This over-crowded condition creates stress in a tree, making them more vulnerable to disease and insect problems. Highly dense stands also increase the likelihood of more destructive wildfires.

Thus, though increases in volume sound good, continued increases eventually manifest themselves in a number of problematic ways. From 2008 to 2012 the equivalent of over forty million acres of forest mortality were caused by insects and diseases.[5] Though they currently are adding carbon, it is projected that the total carbon stock in US forests will begin to decline by 2040 due to a loss of forest cover and an increase in the relative age of standing timber.[6] A recent American Forest Foundation report states that in 11 western states 40% of the land that is critical to protecting water supplies, and also at high risk of extreme fire occurrence because of the lack of active management, belongs to families and individuals.[7] Additionally, where harvesting is reduced, age class distributions become skewed towards mature timber,

[1] Research Supporting Stemming the Loss of Family Forests across the United States: Section II, Butler et al, Family Forest Research Center, May 2014

[2] Forest Resources of the United States, 2012: A Technical Document Supporting the Forest Service Update of the 2010 RPA Assessment. GTR WO-90, October 2014. S Oswalt, et. al.

[3] Estimated from personal correspondence provided by Dr. Brett Butler, US Forest Service Family Forest Research Center. January 2016.

[4] 2012 RPA Board Foot Tables, US Forest Service.

[5] USDA Forest Service. 2013. *Major Forest Insect and Disease Conditions in the United States – 2012.* FS-1023, Washington DC.

[6] USDA Forest Service. 2012. *Future of America's Forests and Rangelands – Forest Service 2010 Resources Planning Act Assessment.* GTR WO-87, Washington, DC.

[7] Western Water Threatened by Fire. American Forest Foundation. 2016

negatively impacting wildlife species that are dependent on the brush-dominated, high sunlight habitat produced in recently harvested areas.

The values at risk are substantial. Standing timber in US forests represent a critical natural resource for providing the nation's wood and paper products and directly support over 3 million jobs – about 2 percent of all jobs.[8] It's estimated that 53% of the lower 48 states' drinking water originates from forests.[9] Some fourteen to fifteen percent of the nation's annual carbon emissions are offset each year by the additional carbon stored in US forests and wood products.[10] Recreational opportunities, wildlife habitat and scenic landscapes are also important public benefits derived from forests.

Historically, forest disturbances have created very dynamic, ever-evolving forest ecosystems, and have served to maintain densities and volumes at healthier levels. These disturbances included floods, wind events, lightning-caused fire and human-caused fire. Flood control has sharply curtailed the influence of water. Today's human population density and the negative impact that fire has on high value forest products limit the amount of acceptable prescribed burning and role of wildfire. Obviously, we can't stop wind events. In lieu of these natural disturbance factors, the best method available for controlling stand density and balancing age classes is active management, i.e. carefully planned tree removal. The question then becomes does the landowner benefit most from a commercial harvest or non-commercial means.

The Value of Commercial Harvest: Strong Timber Markets Create Opportunities

Commercial harvests make long-term forest sustainability possible. Strong timber markets create opportunities for landowners, public and private, to provide the economic, environmental, and social benefits that we all depend on. [11] Yet, their desired outcomes – wildlife habitat, forest health, tree species diversity, fire risk reduction – are often best accomplished through tree removal and where tree removal generates revenue more of these activities can be accomplished. Other desired outcomes, such as access and recreational developments, could benefit from a source of revenue as well. Successful outreach to landowners that brings them in contact with trusted forestry advice are 13% to 17% more likely to intend to harvest timber in the next 5 years. And landowners who have harvested timber are more likely to have improved wildlife habitat on their land.[12]

Businesses owning timberland want to realize a competitive rate of return on their investment. Diverse, robust markets are an absolute necessity for achieving this objective. Where

[8] Forest Resources of the US – 2007, Smith et al, GTR WO-78

[9] Private Forests, Housing Growth and America's Water Supply: A Report from the Forests on the Edge, Forests to Faucet Project. RMRS-GTR-327, September 2014. M. Mockrin et. al.

[10] US Environmental Protection Agency. 2013. *Inventory of US greenhouse gas emissions and sinks: 1990 – 2011.* EPA 430-R-13-001, Washington, DC.

[11] Family Forest Ownerships of the United States, 2013: Findings from the USDA Forest Service National Woodland Owner's Survey. Journal of Forestry. 2016. B Butler et. al.

[12] Evaluation of the Effectiveness and Reach of the Educational Programs and Technical Assistance Activities of the U.S. Forest Service, Forest Stewardship Program. Technical Report. June 2013. B Butler et. al.

competitive returns are not achievable there is pressure for those lands to be converted to other uses. Virtually all of the largest landowners are certified to either the Sustainable Forestry Initiative, Inc. standard, or the Forest Stewardship Council standard. Either certification program requires land management activities that provide for environmental protections and social accountability. Given this fact, NASF views these lands as appropriately and sustainably managed. The presumption is that these lands will remain as forests as long as businesses can achieve their objective of competitive returns.

NASF supports budget and policy changes that accelerate the scope and scale of active management on federal lands in order to restore health, reduce fire risk and become a more meaningful contributor to the economies of local communities. Unfortunately, even though there is more broadscale agreement around those objectives, federal land managers in some regions are challenged by a lack of markets. Without markets commercial harvests are not feasible. Often, markets for the smaller material that needs removal are lacking, but increasingly there is a lack of markets for the kind of large timber that can be found on many public lands. This greatly limits the extent to which active management can be implemented since most activities generate cost rather than at least some off-setting revenue.

Emerging Markets: Opportunities for Sustainable Commercial Harvests

Emerging markets for wood can serve to complement traditional forest products , thus expanding wood demand and offering landowners more opportunities for active management through commercial harvests. Following are brief descriptions of several promising new uses for wood that have the potential to ultimately result in the improved management of the Nation's forests.

Demand for these new products is driven by a number of factors that likely will become even more prominent in the future. These include:

- Subsidized power production in Europe where government policy is focused on eliminating coal-fired operations over a period of time
- Environmental concerns over the longevity of plastics and their continued accumulation in oceans and landfills
- A desire for building materials that effectively sequester carbon and often generate a smaller carbon footprint during manufacture and use.
- Desires to reduce dependence on fossil fuels in favor of renewable sources to meet transportation needs

WOOD PELLETS PRODUCTION

The production of densified wood pellets, particularly for energy generation, has grown dramatically in response to public policy objectives to lower dependence on fossil fuels. A small percentage of pellets are used for wood fired heating. Currently there are 87 operating manufacturing facilities in the U.S. with at least a few more under construction. Annual production capacity is just short of 12 million tons. In February of 2018 facilities purchased about 1 million tons of feed stock. About 18% of the feedstock would be characterized as

pulpwood or roundwood and the remaining represented some form of residual material, for example sawdust from a sawmill. About 80% of the pellet production is exported.[13] This is an increase from very negligible production perhaps 15 years ago and projections suggest continued expansion.

Theoretically, if feedstock purchases were in the neighborhood of 15 million tons per year that would be the equivalent wood usage of approximately 10 large capacity papermills. Unfortunately, between 2005 and 2012 the U.S. lost 15 pulp mills.[14]

CELLULOSIC BIOFUELS

The US uses over 133 billion gallons of gasoline, 42 billion gallons of diesel and 22 billion gallons of jet fuel every year. Though gasoline consumption is expected to decline over time because of the increasing presence of electric vehicles, the demand for jet fuel is expected to increase and the demand for diesel is projected to remain somewhat constant because of its use in trains and large vehicles. It has been estimated that, potentially, 1 billion tons of sustainably grown biomass could produce enough fuel to replace 25% to 30% of US demand.

Currently, cellulosic biomass feedstock costs outcompete average crude oil costs, but refining costs are substantially higher. As a result, there are only a limited number of operational facilities as research continues on processes that economically refine cellulose, hemicellulose and lignin into fuel. It is presumed at this point that successful wood-based processes will focus on jet fuels and the incidental production of marketable by-product chemicals.[15]

BIOCHAR

A by-product from the production of biofuels manufactured through pyrolysis, biochar is a very fine charcoal-like material used to improve soil characteristics. Pyrolysis involves heating wood to extremely high temperatures without oxygen, as the presence of oxygen would cause wood to burn, In this instances it converts into mostly pure carbon. The best biochar is produced at temperatures above 350 degrees centigrade. As a soil amendment it lowers acidity and tightly binds undesirable metals so that they are not taken up by plants or leached from the soil. It can also increase soil porosity in tight clays or reduce porosity in soils that drain too quickly such as sand. It creates a favorable medium for the production of micro-organisms that are beneficial to trees.

Importantly, biochar is principally carbon that is near permanently stored. As such its greatest potential may be its use for long term carbon sequestration.[16]By working biochar into the soil a

[13] Monthly Densified Biomass Fuels Report. U.S. Energy Information Administration. May 2018.
[14] The Forestry Source. Society of American Foresters. Smith & Guldin. January 2012.
[15] Presentation by Josh Schaidle, National Renewable Energy Laboratory, to NASF. February 2017.
[16] Biochar: A Home Gardener's Primer. Washington State University Extension Fact Sheet FS147E

source of nearly pure carbon is being incorporated that is not subject to micro-biological activity. When, for example, wood or some other organic material is incorporated into the soil micro-organisms will eventually break that material down into other compounds, including carbon dioxide which can be released back into the air during soil disturbance.

Where readily available, it has developed market value. Reclamation of oil drilling sites and as a soil amendment for high value crop operations are common uses. Current research is focused on mobile kilns that can be used on site at projects conducting needed thinning of low value timber.[17]

TORREFACTION

Torrefaction is also a pyrolysis process, conducted at lower temperatures than for biochar, that yields a product similar to coal. It makes wood a more practical substitute for coal by being easier to grind, simplifying storage and eliminating moisture uptake issues. Though the weight loss in the process is 30%, the energy loss is only 10%. It's energy profile is improved by the fact that torrefaction generates a combustible gas that can be recirculated back into the system and burned to provide heat.[18]

It has the potential to produce a renewable source of fuel for gasification processes used to make biofuels. Analysis has shown that it could also be a more economical alternative for the densified pellet market in places where that market is still developing.[19]

MASS TIMBER

Mass timber is a category of mostly engineered wood building materials that are structural and can be used as floors, walls, ceilings, and beams. These products include LVL, Glulam, NailLam, Mass Plywood Panels (MPP) and Cross Laminated Timber (CLT). CLT is produced in large panels by assembling successive layers of boards perpendicular to one another. The result is a product that rivals steel in strength and fire resistance. It is lighter in weight than concrete. As such, CLT and other mass timber products can replace concrete and steel in tall structures.[20] Additional benefits include carbon storage and reduced CO2 emissions during construction. Though more commonly produced and utilized in Europe since the late 1990's it has recently gained traction in the US wood products industry with manufacturing facilities in the Pacific Northwest and a new one starting up in Alabama. Building codes across the US are being

[17] Presentation by Darren McAvoy, Utah State Biomass Resources Group, to NASF. February 2017.
[18] Biomass Technology Group website www.btgworld.com
[19] Renewable and Sustainable Energy Reviews. W. Chen et. al. Volume 44, pp847 – 866. February 2015.
[20] Advanced Wood Products Manufacturing Study for Cross-laminated Timber Acceleration in Oregon and Southwest Washington. Pacific Northwest Manufacturing Partnership. 2017

updated to handle mass timber buildings, small changes were made in 2015 and 2018 and revisions proposed for 2021 will allow for buildings taller than 85 feet.

Planned tall construction projects include a 100-story tower in London and a 40-story building in Stockholm.[21] Buildings in the US, include several office buildings in Portland, Oregon two T3 buildings (Minneapolis and Atlanta), and hotels in Alabama and New York state (new ones planned for SC and NC). The University of Arkansas has dormitories under construction and Oregon State University is building their new forestry building with CLT. The University of Massachusetts, Amhurst completed their new design building (https://bct.eco.umass.edu/about-us/the-design-building-at-umass-amherst/) with mass timber more than a year ago. Efforts are underway to develop CLT from low-value and other hardwoods.[22]

While widespread use of mass timber is good news for the economies in timber producing regions of the country, it also promises some distinctive benefits for builders, communities and the environment.

Builders, pressured by persistent labor shortages, are finding a wider pool or workers able to safely install mass timber panels. They also report significant labor savings and more efficient and safe job sites. Construction times are reduced by "just-in-time" delivery to job sites and quick installation of panels.

Of course, communities experience less noise and dislocation during construction and, by avoiding the usual stockpile of dimension lumber on site, fire risks are reduced. The positive environmental attributes of mass timber buildings include a low energy intensity during manufacturing, superior energy efficiency in mass timber structures, and better management of a renewable resource.

NANOTECHNOLOGY

There are two different categories of cellulose nanomaterials; cellulose nanocrystals and cellulose nanofibrils, that are produced through different processes. The processes produce microscopically small particles that can be assembled into materials with highly desirable properties. They are lightweight, strong, stable and stiff. Potential applications include use as a material in paint, coatings, adhesives, a cement additive, lightweight packaging, cell phones manufacturing, composites that can replace plastics in many uses, wound covering hydrogels

[21] First and Largest CLT Plant in Eastern US is Nearly Operational. R. Dalheim. Wood Working Network. April 2018.
[22] US Firm Developing Hardwood CLT Product. Journal of Commerce. June 2017.

and others.[23]Adding nanocrystals to concrete mixes can reduce the volume of cement needed by 15% because of the final material's added strength.

Conclusion

Markets for wood are critical to maintaining the health and sustainability of forests in the United States. They enable the economic, carefully planned harvest of trees to control stand density and create forests that have a more balanced diversity of age classes, which is important to wildlife habitat diversity, forest resilience and providing a more even flow of sustainable wood fiber for harvesting. As harvest levels continue to decline nationally and the resultant increased volumes pose forest health problems, it is important to support the research and development of emerging wood markets, accompanied by growth and evolution of institutions that support science-based sustainable management.

A number of new uses are being pursued and NASF is encouraged that they have the potential to increase wood demand and thereby increase the options for active forest management. Though most are not currently being produced by "production-level" operations these new uses can, at some point, be scaled up to an industrial level that generates consistent and substantial wood fiber markets.

[23] Cellulose Nanomaterials – A Path Towards Commercialization Workshop Report. USDA Forest Service. August 2104.