Forest Service | **Washington Office** | **1400 Independence Avenue, SW Washington, DC 20250**

File Code: 1570-1 **Date:** August 22, 2008
Route To:

Subject: Tongass Land and Resource Management Plan Amendment Appeal Decision

To: Regional Forester, R-10

This is my decision on the appeals of the Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) for the 2008 Amendment to the Tongass Land and Resource Management Plan (Plan Amendment). All appeals of this decision have been consolidated into one set of issues and one decision is being rendered. The issues were sufficiently similar to allow consolidation (36 CFR 217.13(b)). The appeal reference numbers are abbreviated throughout this decision document by the last four digits of the tracking number for the notice of appeal (NOA).

Fifteen appeals were submitted under 36 CFR 217; however, one of those appeals was subsequently dismissed because its content did not meet the requirements of §217.9 to such an extent that it provided insufficient information on which to base a decision. The other appellants represented a variety of interests, including Alaska Native tribes, corporations, communities, conservation, environmental, forest industry, a mining company, and an individual citizen.

Additionally, 11 entities requested and were recognized as intervenors for the purpose of submitting comments on one or more appeals. Eight of those entities were also lead or co-appellants. Seven of the recognized intervenors submitted timely comments. All comments were reviewed for any additional information relevant to the review of appeal issues.

Each appellant and intervenor will receive notification of my decision. The notification will specify that the final appeal decision is available via the World Wide Web at http://www.fs.fed.us/appeals/ or in hard copy, upon request.

The ROD for the Plan Amendment was signed on January 23, 2008, by the Regional Forester for the Alaska Region. The Plan Amendment conforms to the 1982 planning regulations at 36 CFR 219 [1982, as amended] (ROD, p. 1). The 1982 planning regulations (referred to in the ROD as the "pre-2000 regulations) were last published in the Code of Federal Regulations (CFR) on July 1, 2000. The record for the appeal to the Chief of the Forest Service was transmitted in conformance with the regulations at 36 CFR 217.15(a).

2008 Amendment to the Tongass Land and Resource Management Plan

This Plan Amendment is the latest milestone in the history of forest planning for the Tongass National Forest under the National Forest Management Act.[1] The first forest plan under NFMA

[1] The Plan amendment was prepared under the Multiple-Use Sustained Yield Act (MUSYA) (16 U.S.C. 528 et seq.), the Forest and Rangeland Renerwable Resources Planning Act (RPA) of 1974 as amended by the National Forest Management Act (NFMA) of 1976 (16 U.S.C. 1600 et seq.), the September 30, 1982 implementing regulations of the NFMA (36 CFR 219, as amended September 7, 1983), and the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) and its implementing regulations (40 CFR 1500-1508).

was completed for the Tongass in 1979. That plan was amended several times to reflect new information and changed conditions, particularly those brought about by new laws such as the Alaska National Interest Lands Conservation Act (ANILCA) and the Tongass Timber Reform Act (TTRA). Efforts to revise the Tongass Forest Plan began in 1987 and culminated in the approval of the Revised Forest Plan in 1997. This decision has been the focus of several court challenges between 1999 and 2004. In its August 2005 ruling in *Natural Resources Defense Council* v. *U.S. Forest Service* (421 F.3d 797), the U.S. Circuit Court of Appeals for the Ninth Circuit found the 1997 FEIS contained deficiencies including errors in the timber demand estimates, the range of alternatives as it pertained to timber demand, and the analysis of cumulative effects pertaining to activities on non-National Forest System lands.

The purpose of the 2008 Plan Amendment is to correct errors and deficiencies in the 1997 EIS and Plan that were found by the Circuit Court, and to address several needs identified in the Tongass' 2003 5-Year Review. The ROD modifies four of the six components of the Forest Plan, including the goals and objectives, management prescriptions, determination of lands suitable for timber production, and the monitoring and evaluation strategy. Although an amendment was determined to be the appropriate mechanism for correcting the problems identified by the Circuit Court, this decision effectively completes the revision of the Tongass Forest Plan.

Issues

This appeal decision is the outcome of a deliberative and extensive review process. My review of the appellants' concerns provides a response to issues involving complex regulatory and management issues. Although not every contention made in the appeals is cited in the same order or format in this decision, all appellants' concerns have been considered and all intervenor comments were reviewed during the development of this consolidated appeal decision. My appeal review focused on compliance of the ROD, FEIS, and Forest Plan with applicable law, regulation, and policy, and on issues of fact, as cited by appellants or as determined through the Agency's review of the appeals. The responses in Attachment 2 to this letter are organized accordingly.

Appellants raised appeal issues concerning procedural and planning requirements, as well as natural resource issues regarding management of vegetation, wildlife, and special management areas. Appellants variously contended the FEIS and decision violates the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), Alaska National Interest Lands Conservation Act, Alaska Native Claims Settlement Act, Tongass Timber Reform Act, Energy Policy Act, Data Quality Act, regulations pertaining to travel management and roadless area management, executive orders pertaining to environmental justice, and agency directives for minerals management. Appellants also raised several issues of fact and these too have been addressed in my response.

In an August 4, 2008, letter to this office, you provided documentation of an appeal resolution meeting with appellant Sealaska (#0022) held on July 29, 2008. As a result of agreement reached at that meeting, you withdrew Forest-wide Standard and Guideline 9 under Landownership Adjustment: LAND6, on pages 4-36 and 37 of the amended Forest Plan and a corresponding sentence on page 55 of the ROD. The documentation indicates that Sealaska agreed to withdraw their issue that challenged this Forest Plan direction. Consequently, that issue is not addressed in my consolidated appeal decision.

Some appellants alleged various components of the FEIS and ROD were arbitrary and capricious, in violation of the Administrative Procedure Act (APA). The APA, which for the Forest Service has no implementing regulations, provides that a reviewing court may "hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law …" (5 USC 706 (2)(A)). It is therefore a statute more directly applicable at the level of judicial review. Our administrative-level review of this decision addresses compliance with other laws and regulations pertaining to management of the Tongass National Forest and therefore will implicitly incorporate a consideration of whether the decision is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law, and thus inconsistent with the APA.

Appeal Decision

I find your decision meets the requirements of applicable federal law, regulations, and policy except in the instance discussed in the remainder of this letter and for which I have provided instruction. Attachment 2 describes the issues raised by appellants and where the record provides evidence to address those issues. I affirm your decision to select Alternative 6 from the FEIS, with the four modifications described in the ROD, and approve this amendment to the Tongass Forest Plan.

Based on my review, I am instructing you to clarify and document whether the miles of National Forest System roads shown in Table 3.12-1 (FEIS Vol. 1, p. 3-314) include temporary roads. If temporary roads are not included in the estimates shown in Table 3.12-1, then you must also incorporate into the analysis the effects of those temporary roads and follow agency policy for consideration of new information to determine any subsequent actions that may be necessary for compliance with NEPA.

The need for this instruction results from a contention that the FEIS did not provide an adequate disclosure of the likely environmental consequences of the alternatives because temporary roads were not included in the estimate of roads needed to implement the alternatives, thereby underestimating the effects of roads on the resources (NOA #0029, pp. 135-136, 139). The FEIS states that the estimates of new road construction used to analyze the environmental consequences of the road system are based on the logging system and transportation analysis (LSTA) completed in 2007. See FEIS Vol. 1, p. 3-314. See also FEIS Vol. 2, Appendix B, pp. B-30 to 31. All existing temporary roads were mapped during the LSTA. See AR, Doc. #0345, p. 5. The FEIS "displays the maximum anticipated road construction" and states that "most new roads would be closed to motorized traffic once their initial use is over" (FEIS Vol. 1, p. 3-314), which could lead one to assume that temporary roads are included in the total mileage estimate. If temporary roads are included in the road construction estimate, then the effects of temporary roads are included in the analysis of the effects of roads on fish, wetlands, and wildlife. See FEIS Vol. 1, pp. 3-78 to 81, 56 to 57, and 294; FEIS Vol.2, Appendix H, pp. H-125 to 126. See also FEIS Vol. 1, pp. 2-23 to 57. However, nowhere is it clearly stated that the "maximum anticipated road construction" includes temporary roads.

This decision is the final administrative determination of the Department of Agriculture unless the Secretary, on his own initiative, elects to review the decision within 15 days of receipt (36 CFR 217.17(d)).

Gloria Manning

GLORIA MANNING
Reviewing Officer for the Chief

cc: Region 10 Appeals

Attachment 1: Appellants

Appeal #	Name	Organization	On behalf of
08-13-00-0017	Mr. Steven W. Silver	Hoffman, Silver, Gilman, and Blasco	Southeast Conference, Ketchikan Gateway Borough, City and Borough of Juneau, Ketchikan, Wrangell, Craig, Coffman Cove, Prince of Wales Community Advisory Council, Juneau Chamber of Commerce, Ketchikan Chamber of Commerce, Alaska Forest Association
08-13-00-0018	Ms. Julie Weis	Haglund, Kelley, Horngren, Jones, and Wilder	Alaska Forest Association
08-13-00-0019	Mr. Mark Kaelke	Trout Unlimited Alaska	Same
08-13-00-0020	Mr. John Sandor		
08-13-00-0021	Mr. Eric B. Fjelstad	Perkins Cole	Niblack Mining Corp.
08-13-00-0022	Mr. Richard Harris	Sealaska Corporation	Same
08-13-00-0023	Ms. Laurie Cooper	Alaska Wilderness League	Same
08-13-00-0024	Mr. Peter Naoroz	Kootznoowoo Corporation	Same
08-13-00-0025	Mr. Niel Lawrence	Natural Resources Defense Council	Same
08-13-00-0026	Dr. John Schoen	Audubon Alaska	Same
08-13-00-0027	Ms. Sue Schrader	Southeast Alaska Conservation Council (SEAAC)	Same
08-13-00-0028	Ms Karen Hardigg	Wilderness Society	Same
08-13-00-0029	Mr. Paul Olson	Sitka Conservation Society	Greenpeace, Cascadia Wildlands Project, Sierra Club (Juneau Group), Defenders of Wildlife, Center for Biological Diversity, Tongass Conservation Society
08-13-00-0030	Mr. William E. Martin	Tlingit and Haida Indian Tribes of Alaska	Same

Attachment 2: Issues Reviewed and Decision Affirmed

Contents

National Environmental Policy Act (NEPA)

Alternatives

- *Range of Alternatives*

Several appellants contend the range of alternatives considered in the Final Environmental Impact Statement (FEIS) by the Regional Forester were inadequate and therefore not in compliance with NEPA. The implementing regulations for NEPA require agencies to "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated" (40 CFR 1502.14(a)). Section 40 CFR 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative, including the proposed action, to enable a reviewer to evaluate alternatives and their comparative merits. NEPA implementing regulations do not define "reasonable" alternative, but do state that "the alternatives including the proposed action" are proposed to respond to "the underlying purpose and need" for the project (40 CFR 1502.13). The range of alternatives for a proposal is thus normally limited to alternatives that meet the identified purpose and need, and it is not necessary for the range of alternatives to be so broad as to vary the effects on all resources.

The Forest describes the process used to develop the alternatives in response to the purpose and need. See FEIS Vol. 1, pp. 2-5 to 6; Record of Decision (ROD), pp. 11-12. The Forest considered 49 alternatives, including those considered in detail in the 1990 Draft EIS, 1991 Supplement to the Draft EIS, 1996 Revised Supplement to the Draft EIS, 1997 Final EIS, and 2003 Supplemental EIS. The reasons for eliminating some of these alternatives from detailed study are discussed. See FEIS Vol. 1, pp. 2-6 to 9; ROD, pp. 11-12.

Through my review I found the range of alternatives to be consistent with these requirements as they pertain to the contentions brought by the appellants. I find the Forest fully complied with NEPA, specifically 40 CFR 1502.13 and 1502.14, in developing the range of alternatives. The individual contentions are discussed as follows.

Timber demand scenarios
Appellant contends the range of alternatives is inadequate because all four timber market scenarios used in the analysis assume demand will increase, "despite substantial evidence to the contrary" (NOA #0028, pp. 17, 16-21, 22-32). I disagree with the appellant. The range of alternatives used in the FEIS is based, in part, on the Brackley et al. (2006) market demand analysis. See FEIS Vol. 1, pp. 2-5 to 6. See also AR, Doc. #0247. The four scenarios analyzed in that document range from a largely static "existing condition" in Scenario 1 to a fully integrated functional forest products industry in Scenario 4. The ROD (pp. 29-35) describes the requirements for a market demand analysis in the Tongass Timber Reform Act (TTRA) and the 9th Circuit court decision's analysis of the linkages between the allowable sale quantity (ASQ), market demand, and management considerations imposed in NFMA for all resources. The economic considerations, assumptions, and resulting uncertainty in predicting market demand for a small market, such as southeastern Alaska, is further explained in Appendix H of the FEIS Vol. 2, pp. H-26 to 27.

As explained in the FEIS (Vol. 1, pp. 3-499 to 504), the southeastern Alaska forest products industry has undergone dramatic changes since the pulp mill closures in the 1990's including the loss of market share in Japan and a shift to markets in the US. Appellants point to the declining trend in timber harvest over the past 10 years as evidence of declining market demand but, as disclosed in the FEIS, the decline in harvests has as much to do with non-market driven supply restrictions and should not be taken as evidence of market demand. The FEIS evaluates the alternatives with respect to Brackley et al. (2006) and other market demand indicators including current production levels, installed capacity, and minimum volumes required by processing facilities. See FEIS Vol. 1, pp. 3-527 to 535.

I find the agency made appropriate use of the Brackley et al. (2006) market demand scenarios in developing a reasonable range of alternatives that respond to the requirements of Section 101 of the TTRA and appropriately consider the inherent uncertainty in projecting market demand for the Alaskan forest products sector.

Reduced impacts to roadless areas
Appellant contends that the Ninth Circuit's opinion requires the Forest to "investigate alternatives that would allow it to meet market demand with no or fewer impacts to roadless areas" (NOA #0025, p. 15). I disagree that the Court mandates such an alternative. The Court opinion discusses two separate inadequacies with the range of alternatives: (1) the Forest Service had not considered alternatives that set the ASQ equal to the correct demand scenarios, and (2) all of the alternatives allocated some currently roadless areas to development LUDs. Nowhere does the Court require "an alternative that maximizes the ability to meet increases in demand without entering inventoried roadless areas" (NOA #0025, p. 15). The Forest describes the changes made to Alternative 1 in response to comments received on the Draft EIS. See FEIS Vol. 1, p. 1-9. The Forest also explains the difficulties with maximizing timber harvest from a smaller land base in a sustainable manner. See FEIS Vol. 2, Appendix H, p. H-7. I find the range of alternatives is consistent with the Ninth Circuit Court's opinion.

Wilderness recommendations
Appellants contend alternatives should have been considered that recommended Wilderness designation or added acreage to wilderness areas (NOA #0029, p. 42; NOA #0027, p. 13). Forest Service policy for implementing NFMA and its implementing regulations at 36 CFR 219 states that "all roadless, undeveloped areas … should be evaluated and considered for recommendation as potential wilderness areas during plan development or revision." See Forest Service Manual (FSM) 1920.03, 2. The Final EIS and ROD for the revised Tongass Forest Plan was issued in 1997.

Subsequent to that revision, the Forest developed a Supplemental EIS (SEIS) specifically to evaluate wilderness recommendations for roadless areas on the Tongass; that Final SEIS and ROD were issued in February 2003. See FEIS Vol. 1, pp. 1-1 to 2. The Forest describes the relationship of these previous planning efforts to the current amendment. See FEIS Vol. 1, pp. 1-3 to 6. The Regional Forester reviewed the decision he made in 2003 regarding wilderness recommendations, and found "the 2003 decision should remain in effect." See ROD, p. 7.

Because this is an amendment and not a plan development or revision, there is no statutory or policy requirement for evaluating areas for wilderness recommendation. The Forest clearly defined the purpose and need for this Forest Plan amendment, and evaluated a vast range of alternatives. In addition, the Regional Forester reviewed his past decision regarding wilderness recommendations and determined that it should stand. I find the range of alternatives considered with respect to recommendations for Wilderness designation did not violate NEPA or NFMA.

Removal of roadless areas from timber LUDs

Appellant contends the agency failed to consider alternatives that included the removal of roadless areas from the timber Land Use Designations (LUDs) (NOA #0029, p. 42). According to the Regional Forester, "one of the fundamental objectives that guided the development of alternatives … was to exclude roadless areas from the development LUDS … as much as possible in each alternative" (ROD, p. 12). Alternative 1 allows no scheduled timber harvest or road construction in any roadless area. See ROD, p. 39; FEIS, pp. 2-6 and 15. The Regional Forester describes how minimizing effects on roadless areas affected his decision. See ROD, pp.17-18, 37-42. He also developed the Timber Sale Program Adaptive Management Strategy to avoid timber harvest and road construction in areas of the Tongass perceived as more environmentally sensitive, such as roadless areas, until the demand develops to warrant activity in those areas. See ROD, pp. 64-66. The seven alternatives considered in detail for this amendment were "designed to fully bracket the range of timber demand scenarios identified by Brackley et al. (2006)", and "to range from very limited development of inventoried roadless areas to more intensive development within roadless areas." See FEIS Vol. 1, p. 2-5. I find these alternatives to be in compliance with NEPA's requirements for consideration of a reasonable range of alternatives.

Subsistence LUD

Appellant contends the agency failed to consider alternatives with a subsistence LUD (NOA #0029, pp. 48-49). The Forest disclosed the rationale for not including a subsistence land use designation, choosing instead to manage for subsistence on all National Forest System lands. See FEIS Vol. 2, Appendix H, p. H-95. The Forest considered subsistence use and resources in developing and evaluating the alternatives (ROD, p. 12), and providing for the continuation of subsistence uses and resources is a goal common to all the alternatives. See FEIS Vol. 1, p. 2-11. Providing for subsistence activities and resources is an integral component of the Forest-wide desired condition (Forest Plan, p. 2-2), goals and objectives (Forest Plan, pp. 2-7 to 9), standards and guidelines (Forest Plan, pp. 4-68 to 69), and monitoring program (Forest Plan, p. 6-16). The Forest acknowledges the importance of managing for subsistence use, and commits to "continue to work with the appropriate state agencies, local communities, the Southeast Alaska Federal Subsistence Regional Advisory Council, and State Fish and Game Advisory Committees" regarding specific subsistence resources and the Forest's management activities (FEIS Vol. 2, Appendix H, p. H-95). Finally, the Regional Forester clearly states that sustaining subsistence uses is a key factor in his decision. See ROD, p. 15. The Forest clearly disclosed the rationale for not considering alternatives with a subsistence LUD, and I find no violation of NEPA.

Road management
Appellant contends alternatives should have been considered that altered road management (NOA #0029, pp. 131-134). Neither the Ninth Circuit Court's decision nor the 5-Year Review of the Forest Plan indicated a need to change road management direction. See Appeal Record (AR) Doc. #0199; AR, Doc. #488. As noted previously, the Forest clearly defined the purpose and need for this Forest Plan amendment, and developed alternatives in response to that purpose and need. There is no law, regulation or policy requiring that the road management be addressed in this Forest Plan amendment, and I find no violation of NEPA.

Lower Allowable Sale Quantities (ASQs)
Another appellant contends there should have been more alternatives considered with lower ASQs to allow for greater adaptation to climate change (NOA #0029, p. 32). The Forest discusses the rationale for not considering alternatives with a lower ASQ than provided for in Alternative 1 (49 MMBF annually). See FEIS Vol. 1, p. 2-8. The Forest notes, correctly, that the ASQ is a ceiling, not a targeted or required amount: "The amount of timber offered for sale in any year can … be anywhere below the annual average; the amount offered for sale over a decade can be below the decadal ASQ. Many factors can result in timber sale offerings that are below the average annual ASQ, including … new resource issues that need to be addressed" (FEIS Vol. 1, p. 2-9). Therefore, a lower ASQ is not necessary in order for the Forest to adapt to climate change, stochastic events, or other resource issues. The Regional Forester considered the effects of climate change in making his decision, and commits to a "robust monitoring plan that will allow for adaptive management intervention if and when effects of climate change are more certain." See ROD, p. 50. See also Forest Plan, pp. 6-1, 6, 9, and 10. The Forest fully complied with NEPA in developing the range of alternatives.

- *No Action Alternative*

Appellant contends two no action alternatives should have been considered to provide an adequate ecological baseline and to "incorporate a safety margin for stochastic events" (NOA #0029, pp. 32, 149-150).

NEPA requires that the range of alternatives "[i]nclude the alternative of no action." See 40 CFR 1502.14(d). While NEPA is silent regarding the meaning of the no action alternative, the Council on Environmental Quality (CEQ) addresses the question in its memorandum, "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" which recognizes

> … two distinct interpretations … depending on the nature of the proposal being evaluated. The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases 'no action' is 'no change' from current management direction or level of management intensity. **To construct an alternative that is based on no management at all would be a useless academic exercise.** Therefore, the 'no action' alternative may be thought of in terms of continuing with the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan. In this case, alternatives would include management plans of both greater and lesser intensity, especially greater and lesser levels of resource development. (emphasis added)

See 46 FR 18026 (1981).

The NFMA implementing regulations require "[a]t least one alternative shall reflect the current level of goods and services provided by the unit and the most likely amount of goods and services expected to be provided in the future if current management direction continues. Pursuant to NEPA procedures, this alternative shall be deemed the 'no action' alternative." See 36 CFR 219.12(f)(7).

The FEIS identifies Alternative 5 as the no action alternative, noting that it "represents a continuation of the current Forest Plan" and "is the same as the current Forest Plan (Alternative 11 from the 1997 FEIS plus amendments)." See FEIS Vol. 1, p. 2-31. I find the Regional Forester followed the direction provided by 40 CFR 1502.14(d), 36 CFR 219.12(f), and the CEQ in appropriately defining the no action alternative.

Changes Between Draft and Final EIS

Appellants contend the inclusion of the adaptive timber strategy in the final decision violates NEPA because no opportunity for review and comment was provided (NOA #0018, p. 13; #0028, pp. 37-38). One of these appellants also contends the strategy effectively excludes lands from the suitable land base, and therefore "amounts to a de facto amendment of the Forest Plan in violation of NFMA and its implementing regulations" (NOA #0018, p. 14).

Under the NFMA 1982 planning regulations, a forest plan contains six fundamental components and decisions. These are: the establishment of forest-wide multiple-use goals and objectives (36 CFR 219.11(b)); development of multiple-use prescriptions and associated standards and guidelines (36 CFR 219.11(c)); identification of lands suitable for timber production (36 CFR 219.14); determination of the allowable sale quantity (ASQ) (36 CFR 219.16); development of a monitoring and evaluation plan (36 CFR 219.11(d)); and Wilderness recommendations or non-wilderness allocations for roadless areas (36 CFR 219.17).

The Timber Sale Program Adaptive Management Strategy (the Strategy) does not affect any of these decisions. It is an extra step the Regional Forester is taking in implementing the Forest Plan to respond to recommendations and comments that timber harvest and road construction be avoided in more environmentally sensitive areas of the Tongass unless the demand materializes to warrant activity in those areas. See ROD, p. 64. The Strategy does not change the areas identified as suitable for timber production (ROD, p. 9) nor does it prohibit timber sales in those areas. It merely affects the timing of potential sales, in response to actual market demands. Because the Strategy does not change any of the fundamental decisions made by a Forest Plan as described in the DEIS, I find its addition in the ROD does not violate any requirements of NEPA or NFMA.

Environmental Consequences

Several appellants variously contend the FEIS did not provide an adequate disclosure of the likely environmental consequences of the alternatives. These contentions were reviewed against the NEPA implementing regulations that require an FEIS to include "the environmental impacts of the alternatives including the proposed action" (40 CFR 1502.16). Specific contentions related to this regulatory requirement are addressed below.

- *Logging of high-volume stands and big trees*

One appellant contends the FEIS provides an inadequate analysis of the effects of logging because the assumption is wrongly made that the plan will prevent high-grading of high-volume stands and big trees (NOA #0025, p. 17). I disagree with the appellant. The Forest split the Allowable Sale Quantity into two Non-Interchangeable Components (NICs) in order to prevent disproportionate

future harvest of the most economical areas. See ROD, pp. 6-7. The steps followed to determine the level of disproportionate past harvest are described. See FEIS Vol. 2, Appendix B, pp. B-29 to 30. The effects of disproportionate timber harvest are discussed (FEIS Vol. 1, pp. 3-138, 140, 143, 149 to 167, 207, 208, 278), and in the ROD (pp. 45-46). The FEIS discusses the cumulative impacts of past, present and future planned timber harvest (including private lands and public lands) on biodiversity and productive old growth (Vol. 1, pp. 3-198 to 217), on timber harvest (Vol. 1, p. 3-350), and on wildlife (Vol. 1, p. 3-293). I find the Forest's effects analysis of disproportionate timber harvest on public and private lands to be sufficient to comply with NEPA.

- *Sitka black-tail deer*

Appellant contends the analysis of effects to deer is "incomplete, misleading, and erroneous" (NOA #0029, pp. 100-115). Environmental consequences to deer are addressed in great detail in the FEIS. The FEIS describes the affected environment as well as the environmental consequences for blacktail deer. See FEIS Vol. 1, pp. 3-230 to 232, 265 to 277). The intersection of wolf and deer management is also described. See FEIS Vol. 1, pp. 3-281 to 285. The place of deer in subsistence is also described. See FEIS Vol. 1, pp. 3-426 to 435. The assumptions and application of DeGayner Deer Model are displayed. See FEIS Vol. 2, Appendix B, pp. 3-32. The scientific review of the deer model is found in the appeal record. See AR, Doc. #1896. Sitka blacktail deer continues to be a management indicator species (FEIS Vol. 1, pp. 3-230 to 232) and the monitoring plan for blacktail deer is found in the amended Forest Plan (Table 6-1, p. 6-10). I find the analysis for effects to deer displayed in the planning record to be consistent with NEPA's requirements for disclosure of environmental consequences.

- *Brown bear*

Appellant contends the FEIS fails to adequately disclose the effects to brown bear, including "substantial new information regarding bear use of riparian areas" (NOA #0029, pp. 117-119). In fact, I find that environmental consequences to brown bear are addressed in great detail in the FEIS. The FEIS describes the affected environment (Vol. 1, pp. 3-235 to 236) as well as the environmental consequences for brown bear (Vol. 1, pp. 3-280 to 281). Brown bear continues to be a management indicator species (FEIS Vol. 1, Table 3.10-1, p. 3-224) and the monitoring plan for brown bear that was used in the decision is found in the amended Forest Plan (Table 6-1, p. 6-10). Discussion of how new information concerning the utilization of riparian areas by brown bear is presented in the ROD (pp. 56-57). I find the analysis for effects to brown bear displayed in the planning record to be consistent with NEPA's requirements for disclosure of environmental consequences.

- *Queen Charlotte goshawk*

Appellant contends the agency failed to provide adequate analysis and disclosure of effects to Queen Charlotte goshawk (NOA #0029, pp. 65-83). An overview of the decision as it pertains to goshawk is presented in the ROD (pp. 8, 22-23, 57). The FEIS presents the affected environment (Vol. 1, pp. 3-226 to 229) and environmental consequences (Vol. 1, pp. 3-262 to 265) for goshawk. Queen Charlotte goshawk retains its status as a sensitive species (FEIS Vol. 1, Table 3.10-1, p. 3-224), and monitoring protocols for sensitive species are displayed in the Forest Plan (Table 6-1, p. 6-10). Science pertaining to goshawk is presented in Appendix D of the FEIS (Vol. 2, pp. D-22 to 24, 33 to 37, 44 to 48, 55 to 58, 79 to 82, and 89), including detailed discussions of direct, indirect, and cumulative effects. Two reviews of plan components pertaining to goshawk are presented in the administrative record: an independent status review from the Fish and Wildlife Service (AR, Doc. #0944), and a review of the conservation strategy (AR, Doc. #1610) by academicians, biometricians, independent contract biologists, Forest Service and Fish and Wildlife Service

specialists, and biologists from the State of Alaska. The analysis of effects and consequences to goshawk is comprehensive and consistent with NEPA requirements at 40 CFR 1502.16.

- *Endemic mammals*

Appellant contends the analysis of effects to endemic and small mammals inappropriately relies on the 1997 scientific panel assessment and the FEIS fails to disclose a hard look at effects to those species (NOA #0029, pp. 85-99). The 1997 panel assessments are discussed in detail (FEIS Vol. 2, Appendix D, pp. D-51 to 52, 69 to 73, including Table D-13), and new science specific to endemic taxa that has developed since the 1997 panel assessments is highlighted (FEIS Vol. 2, p. D-26). The FEIS discusses endemism in general (Vol. 1, pp. 3-170 to 171), summarizes current knowledge related to the management of endemic mammals (Vol. 1, pp. 3-248 to 250) and highlights science specific to endemic mammals (Vol. 1, pp. 3-289 to 290). Reviews and evaluations of the 1997 assessment have been conducted by a wide variety of experts, internal and external to the Forest Service. See AR, Docs. #1610, 0964, and 0413. Standards and guidelines and monitoring requirements specific to endemic animals are included in the amended Forest Plan. See Forest Plan, p. 4-97 and 6-10, Table 6-1. The Regional Forester discusses the conservation of endemic animals in his decision. See ROD, pp. 24-25. I find the analysis of effects to endemic animals to be extensive and well supported by science, consistent with NEPA requirements at 40 CFR 1502.16.

- *Economics*

Appellants contend disclosure requirements at 36 CFR 219.12(g) and 40 CFR Sections 1502.14 and 1502.16 were violated because the FEIS did not clearly display a number of costs and subsidies (NOA #0028, pp. 55-57; NOA #0029, pp. 120-124). Specifically, appellants allege the Forest used outdated timber sale costs; did not include the cost of building roads; did not inform the public of the amount of regional based jobs for each alternative, including the effects of the Limited Interstate Shipment Policy (LISP); and failed to present the timber sale costs in a way that adequately informed the decision maker and the public.

The NFMA implementing regulations call for forest plans that "provide for multiple use and sustained yield of goods and services from the National Forest System in a way that maximizes long term net public benefits in an environmentally sound manner." See 36 CFR 219.1(a). The Forest evaluated net public benefits through an economic efficiency analysis, in accordance with Forest Service Handbook (FSH) 1909.17, 10. See FEIS Vol. 1, pp. 3-544 to 556. Changes were made to the economic efficiency analysis based on comments received on the DEIS, and the FEIS clearly discusses and discloses the methodology and data used in the economic efficiency analysis for the timber program, and how the $101/MBF figure for timber variable costs was derived. It also specifically states that timber sale-related road construction costs are included. See FEIS Vol. 1, pp. 3-546 to 548; FEIS Vol. 2, Appendix H, p. H-52. The Forest responded to comments regarding the economic efficiency analysis in general and the pre-roading process in particular, including why those costs are not included in the costs of the timber program. See FEIS Vol. 2, Appendix H, pp. H-49 to 56, 112 to 113. The Forest discussed and disclosed the expected road development by alternative, the effects of road construction, and the uncertainty of funding for road construction. See FEIS Vol. 1, pp. 2-53, 3-314 to 315, and 317. The Forest also evaluated and disclosed the effects of the alternatives, including the impacts of the LISP on the local economy and regional jobs. See FEIS Vol. 1, pp. 3-499 to 511, 526 to 539; AR, Doc. #C0672. Finally, the Regional Forester discusses and acknowledges the past significant investments in road development, and acknowledges additional investments will be necessary in the future. See ROD, p. 66. I find the

analysis of economic effects was conducted in accordance with the requirements of the implementing regulations for NEPA and NFMA, and with Forest Service directives.

- *Roadless areas*

Appellant contends effects associated with roadless areas were not adequately disclosed, specifically the economics of logging in roadless areas, and the unique ecological values and economic values of roadless areas (NOA #0029, pp. 34-38). I disagree with the appellant for the following reasons.

The importance of roadless areas to wildlife, biodiversity, recreation and tourism, as well as their passive use and ecosystem services values, is one of three major issues which drove the alternatives and analysis for this Plan amendment. See FEIS Vol. 1, p. 1-7. The environmental consequences of the alternatives on roadless areas are discussed, disclosed, summarized, and compared. See FEIS Vol. 1, pp. 2-43 to 49, 61, and 3-450 to 454.

The FEIS includes an economic analysis of non-market goods and services, including roadless area values, and the economic costs of timber harvests. I have addressed the adequacy of those analyses elsewhere in this document (National Forest Management Act, Economic Analysis; and National Environmental Policy Act, Environmental Consequences, Economics). Specific project proposals in roadless areas will require analyses of the environmental, economic, and social effects of those proposals on the roadless areas. See ROD, pp. 3 and 67.

The effects analysis in the FEIS discusses environmental consequences according to the physical, biological, social, or economic factors being affected. See FEIS Vol. 1, p. 3-1. In order to find the analysis of the effects of roadless areas on biodiversity or species viability, one must look in the biodiversity or wildlife sections of the FEIS. Roadless areas "represent large, unfragmented wildlife habitats" (FEIS Vol. 1, p. 3-450), and are "an indirect measure of unfragmented (from clearcut harvest) landscapes" (FEIS Vol. 2, Appendix D, p. D-14). The old-growth habitat conservation strategy discusses the importance of these unfragmented landscapes to biodiversity and species viability. See FEIS Vol. 2, Appendix D, pp. D-14, 63, 65 to 66. The strategy includes a forest-wide system of old growth reserves (Old-Growth Habitat LUDs and other non-development LUDs) which "provides the backbone framework to ensure maintenance of habitat for species viability" (FEIS Vol. 2, Appendix D, p. D-87). Variations of the strategy, i.e. the amount of roadless areas allocated to non-development LUDs, are incorporated into each of the alternatives evaluated in this FEIS. See FEIS Vol. 1, pp. 3-174 to 175. Therefore, the analysis of the effects on biodiversity (FEIS Vol. 1, pp. 3-182 to 217) addresses the contribution of roadless areas to biodiversity and species viability. Even where roadless areas are not mentioned directly, roadless areas are by necessity included in the effects analyses since roadless areas constitute some 87 percent of non-wilderness lands on the Tongass.

In addition, the effects of changes in the amount of roadless areas to biodiversity (FEIS Vol. 1, p. 3-199), brown bear (FEIS Vol. 1, p. 3-280 to 281), Alexander Archipelago wolf (FEIS Vol. 1, p. 3-284), other wildlife species (FEIS Vol. 1, p. 3-295 to 296), the supply of recreation opportunities (FEIS Vol. 1, p. 3-386), recreation use and demand (FEIS Vol. 1, pp. 3-391 to 392, 397 to 399), subsistence use (FEIS Vol. 1, p. 3-431), short-term timber supply (FEIS Vol. 1, p. 3-538), mining employment and income, (FEIS Vol. 1, p. 3-541 to 542), non-use values (FEIS Vol. 1, p. 3-551), and specific communities (FEIS Vol. 1, p. 3-586, 610, 630, 640, 644, 664, 679, 705) are discussed. I find the analysis of effects of roadless areas to be consistent with NEPA requirements at 40 CFR 1502.16.

Appellant also contends the FEIS fails to discuss the effects of the alternatives on the eligibility of roadless areas for future wilderness designation (NOA #0029, pp. 39-41; #0027, p. 13). This EIS is tiered to the 2003 Supplemental EIS for Roadless Areas Evaluation for Wilderness Recommendations (2003 SEIS). See FEIS Vol. 1, p. 1-1. The Council on Environmental Quality encourages agencies "to tier their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision" (40 CFR 1502.20). The long-term protection of roadless areas and associated values was one of two major issues driving alternative development in the 2003 SEIS and the analysis in the 2003 SEIS was focused on the effects of the alternatives on the future potential to recommend roadless areas for designation as wilderness. See FEIS Vol. 1, p. 1-5; AR, Doc. #244; 2003 FEIS Vol. 1, p. 3-191. The 2003 SEIS clearly discloses that road building and other activities affect the availability of roadless areas for wilderness consideration. See AR, Doc. #244; 2003 SEIS Vol. 1, p. 3-183. Therefore, I find the Forest acted appropriately and in accordance with 40 CFR 1502.20 by incorporating the analysis contained in the 2003 SEIS into this FEIS.

Another appellant contends the FEIS contains no discussion or disclosure of the effects of the Timber Sale Program Adaptive Management Strategy (TSPAMS) on roadless areas (NOA #0027, p. 13). The Timber Sale Program Adaptive Management Strategy (TSPAMS) does not alter any of the decisions made as part of a Forest Plan. The TSPAMS is an extra step the Regional Forester is taking in implementing the Forest Plan; it excludes timber sales and associated road construction from moderate and higher value roadless areas that are included in the suitable timber base until actual timber harvest indicates the need for timber in those areas. See ROD, p. 64. The TSPAMS does not change the areas identified as suitable for timber production. See ROD, p. 9.

I find the Forest conducted an appropriate effects analysis regarding roadless areas and adequately disclosed the effects of the decision consistent with NEPA requirements at 40 CFR 1502.16.

- *Effects of transportation management*

Appellant contends the effects of roads on watersheds and on fragmentation are not adequately considered (NOA #0029, pp. 139, 142). On the contrary, I find the effects of roads on water quality, fish, wetlands and fragmentation are discussed throughout the FEIS. See FEIS Vol. 1, pp. 3-47 to 48, 78 to 81, 56 to 57, 167 to 170, 174, 186, 187, 189, 191, 192, 194, 196, 221 to 223, 292 to 297. See also FEIS Vol. 2, Appendix H, p. H-144. I find that impacts to watersheds and fragmentation from roads are adequately presented in the FEIS and comply with NEPA requirements at 40 CFR 1502.16.

The appellant also contends the FEIS does not adequately consider the impacts of unauthorized (ghost) roads, failed to disclose the source for the estimated mileage of ghost roads, failed to provide for removal of these roads, failed to consider the impacts of the road maintenance backlog, including the impact of unauthorized roads, and was not informed by the annual road condition surveys (NOA #0029, pp. 136-139). The Forest conducted a comprehensive inventory of existing roads, including all classified and most unclassified (ghost) roads, while updating the roadless area inventory for the 2003 SEIS. See AR, Doc. #244; 2003 SEIS Vol. 1, p. 2-5. Site-specific proposals and information, such as decommissioning unauthorized roads and information from the road condition surveys, will be considered as part of the roads analysis process and travel management planning being conducted by the Ranger Districts. See FEIS Vol. 1, p. 3-312; FEIS Vol. 2, Appendix H, p. H-125. The extent and effects of the maintenance backlog are discussed in the roads analysis which informed this FEIS. See AR, Doc #370, pp. 51, 54-60, 72-80. The Forest has used the roads analysis to identify maintenance needs and prioritize funding. See FEIS Vol. 2, Appendix H, p. H-

125. I find the impacts of unauthorized roads and of the maintenance backlog are adequately presented in the FEIS and comply with NEPA requirements at 40 CFR 1502.16.

Appellant contends the "new, 'road storage' strategy" is inconsistent with the transportation policy, and the FEIS doesn't consider the impacts of such a strategy (NOA #0029, pp. 139-142). The Forest uses the term "placed in storage" to identify roads that have been assigned maintenance level 1. See FEIS Vol. 1, p. 3-315; Forest Plan, p. 4-86. According to Forest Service Handbook (FSH) 7709.58, 12.3, 2, a, maintenance level 1 is "assigned to intermittent service roads during the time they are closed to vehicular traffic", and "[p]lanned road deterioration may occur at this level." Contrary to appellant's contention, assigning roads to maintenance level 1, essentially placing them in storage, is not a "new" strategy, but is consistent with Forest Service policy. The Forest discussed the reasons for placing roads in storage. See FEIS Vol. 1, p. 3-314 to 315; FEIS Vol. 2, Appendix H, p. H-125. The effects of roads, including maintenance level 1 roads, on wetlands, fish, and wildlife are disclosed in the FEIS. See FEIS Vol. 1, pp. 3-56 to 57, 78 to 81, 294. See also FEIS Vol. 1, pp. 2-23 to 57. I find no violation of NEPA requirement at 40 CFR 1502.16.

Appellant contends the effects associated with OHV access are not adequately considered (NOA #0029, p. 142). The alternatives considered in this EIS do not vary in how OHVs are managed. The FEIS discloses that decisions regarding specific roads and trails open to OHVs will be made as part of the on-going travel management plans being conducted by the ranger districts, and the site-specific effects on OHV access and of OHV access will be evaluated as part of that process. See FEIS Vol. 1, p. 3-316; FEIS Vol. 2, Appendix H, p. H-126. The FEIS does discuss current OHV use and Forest Service policy. See FEIS Vol. 1, p. 3-312. The FEIS contains an adequate level of analysis, commensurate with the decision being made, and complies with NEPA requirements at 40 CFR 1502.16.

Cumulative Effects

Cumulative impacts comprise part of the scope of an environmental impact statement (40 CFR 1508.25(c)) and are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions" (40 CFR 1508.7).

- *Roads*

Appellant contends the FEIS fails to adequately consider cumulative impacts of Forest Service and non-National Forest roads because the estimated amount of future non-National Forest roads is the same for all alternatives (NOA #0029, pp. 142-143). The Forest discloses the process used for estimating the future amount of both Forest Service and non-National Forest roads, the uncertainties associated with the road estimates, and states that future construction was generally estimated to be conservatively high. See FEIS Vol. 2, Appendix B, pp. B-29 to 31; FEIS Vol. 1, p. 3-317. See also AR, Doc #1622. The cumulative effects of Forest Service and non-National Forest roads on fish, plants, wildlife, and on the Southeast Alaska transportation network are disclosed. See FEIS Vol. 1, pp. 3-90 to 92, 115, 294, 297, and 316 to 317. I find this disclosure adequately complies with NEPA regulatory requirements for cumulative effects.

- *Timber harvest*

Appellant contends the FEIS failed to disclose an adequate catalogue of past harvest and the cumulative effects of past and future high grading. The appellant further contends the cumulative

effects analysis is inadequate because ecological thresholds are undefined and too large of a scale is considered for effects related to old growth (NOA #0028, pp. 57-68). Based on my review of the appeal record, I disagree with the appellant. NEPA regulations do not define a specific scale at which the analysis of cumulative impacts must take place nor require the definition of ecological thresholds. By its nature, analysis conducted as part of a Forest Plan decision will take place at a larger scale than analysis related to a specific project. Cumulative effects are disclosed in Chapter 3 of the FEIS. The Forest describes the logic behind their choice of scale for the cumulative effects analysis on various resource types (e.g. social, wildlife, etc) on p. 3-3 of the FEIS.

In the Record of Decision (ROD) the Regional Forester describes how the Allowable Sale Quantity is split into two Non-Interchangeable Components (NICs) in order to prevent disproportionate future harvest of the most economical areas (ROD, p. 7). As part of the effects analysis, the steps followed to determine the level of disproportionate past harvest are described in Appendix B of the FEIS (pp. B-29 to 30). The effects of disproportionate timber harvest are discussed in Volume 1 of the FEIS on pp. 3-138, 140, 143, 149 to 167, 207, 208, 278, and in the ROD (pp. 45-46).

In the FEIS the Forest discusses the cumulative impacts of past, present, and future planned timber harvest (including private lands and public lands) on karst landscapes (p. 3-24); water conditions (p. 2-49); wetlands (p. 3-59); fish (pp. 3-91 to 93); sensitive and rare plants (pp. 3-114 to 115); invasive plant species (pp. 3-116 to 117); forest health (p. 3-125); biodiversity, including effects on productive old growth (pp. 3-198 to 217); wildlife (pp. 3-269, 292 to 296); timber (p. 3-350); subsistence (pp. 3-432 to 433); and roadless (p. 3-453), including both quantitative and qualitative information in the cumulative effects analysis. The Forest discusses quantitative ecological thresholds in relation to cumulative effects on biodiversity on pp. 3-200 and 293 of the FEIS. As part of the cumulative effects analysis the Forest analyzed the impacts of past and present timber sales on both private and public lands and expected future timber harvest on both public and private lands. A catalog of past harvest on the National Forest, State, private, and other lands is provided. See FEIS Vol. 2, Appendix E, pp. E-1 to 11). Based on my review of the appeal record I find the Forest's cumulative effects analysis of old growth and timber sales on public and private lands is sufficient to meet the requirements of NEPA.

- *Old-growth*

Appellants contend the assessment of habitat abundance in the FEIS substantially underestimates the original distribution of large-tree old-growth habitats because it is based on records of harvesting after 1986. Appellants further contend the cumulative effects associated with the loss and fragmentation of this forest type are not adequately described (NOA #0026, pp. 5-15).

Potential cumulative effects to biodiversity from reasonably foreseeable future harvests are displayed, on a geographic area basis, in the FEIS (Vol. 1, pp. 3-205 to 217). Cumulative effects to wildlife (pp. 3-292 to 296.), fish (pp. 3-90 to 93), and plants (pp. 3-114 to 117) from past activities are also displayed in the FEIS. Appendix E to the FEIS is a catalog of past timber harvest activities, based on information from the State of Alaska. Forest fragmentation and connectivity are discussed in Chapter 3 of the FEIS (pp. 3-167 to 169, and Table 3.9-11; pp. 3-221 to 223). The amended Forest Plan establishes standards and guidelines to promote wildlife and fish habitat connectivity (pp. 4-4, 53, 86, and 91). The Regional Forester explicitly states "past timber harvest, including past disproportionate harvest of high-volume stands, has been considered in the design of old-growth reserves and in the development of the conservation strategy" (ROD, pp. 46-47). I find the record clearly displays the cumulative effects to biodiversity, including large-tree old-growth habitat, from past timber harvests consistent with NEPA requirements. I likewise find that the issues of forest

fragmentation have been displayed and addressed in sufficient detail to comply with NEPA requirements.

- *Climate change*

Appellants contend the Forest Service failed to adequately analyze and disclose in the FEIS the environmental effects of climate change, including specifically the effects on watersheds and fish, disturbance events, and subsistence species (NOA #0028, pp. 68-71; #0029, pp. 9-26; #0030, p. 2). The appellants further allege the agency has dismissed climate change as too uncertain to address and that there is greater certainty of climatic change impacts than described in the FEIS.

Discussions regarding cumulative effects related to climate change are found throughout the FEIS. These include discussions indicating a high likelihood of increases in temperature, lengthening growing seasons, increases in rain and decreases in snow, or greater risk of large storm events or other weather anomalies. See FEIS Vol. 1, pp. 3-11 to 12. The FEIS discusses potential impacts that may occur from climate change in general (Vol. 1, pp. 3-18 to 20) and for specific resources, but also discusses reasons why there is uncertainty over the specific nature of these impacts. Specifically, the FEIS contains discussions with respect to climate change on subsistence resources (p. 3-20), water (pp. 3-50 to 51), fish (pp. 3-67, 92 to 93), plant diversity (pp. 3-116, 124 to 125), fire frequency (pp. 3-121, 125 to 126), blowdown (pp. 3-122, 125 to 126), insect and disease problems (pp. 3-125 to 126), biodiversity (pp. 3-203 to 205), plants (p. 3-117), wildlife (p. 3-296), and recreation opportunities (pp. 3-400 to 401). There is also a brief discussion on Kittlitz murrelet (FEIS Vol. 1, p. 3-262) and how its habitat is affected by climate change.

In the discussion of watersheds and fish, the potential of climate change to raise stream temperatures, reduce flows, and thus reduce the capability of these streams to support fish is discussed. However, the discussion also points out that given the high rainfall and cool temperatures of the Tongass, it is unclear that the estimated climate changes would substantially affect the conditions needed to support fish. It also cites studies (Murphy and Milner) indicating that that most studies of logging and stream temperatures found no effect or a modest effect on stream temperatures that did not approach lethal levels for fish. See FEIS Vol. 1, p. 3-67. This suggests that elevated summer stream temperatures are affected more by other environmental conditions than by timber harvest.

Similar discussion occurs for consideration of blowdown from large storm events. The FEIS acknowledges the risk of large-scale blowdown resulting from climate change. See FEIS Vol. 1, p. 3-122. However, it is also explained that the documented increase of storms in the last few decades has not resulted in a corresponding increase in large scale blowdown. See FEIS Vol. 1, p. 3-125. So while the Forest accepts the possibility of greater blowdown from increased storms, it also regards this as an uncertain effect.

In arriving at a decision for the plan amendment, the influence of climate change was carefully considered, including a consideration of the level of scientific knowledge, the uncertainties of potential impacts to the resources of the Tongass, and the risks posed to those resources. See ROD, pp. 50-51. He concluded that an approach of managing the Tongass as a mostly intact ecosystem following a plan that allows for adaptive management intervention was the best way to address concerns about climate change.

Based on my review, I find the FEIS has made appropriate disclosure of the cumulative effects of climate change, in compliance with NEPA regulations.

Methodology and Scientific Integrity

Implementing regulations for NEPA require agencies to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." Methodologies used must be identified and explicit reference must be made to the scientific and other sources relied on to reach conclusions (40 CFR 1502.24).

- *Timber demand analysis*

Appellant contends the market demand study and its addendum, both used for the plan amendment, are highly inaccurate, leading to other planning flaws. Appellant specifically contends the timber demand study used for the amendment used only Pacific Rim softwood demand although domestic markets now consume almost 80 percent of Tongass National Forest wood (NOA #0028, pp. 36-37).

I can't agree with the appellant. The appellant asserts that the model used by Brackley and Haynes (2006) is obsolete because it is based on an outdated assumption that Japan is the primary market for Alaskan forest products. This issue is addressed directly in the FEIS Vol. 2, Appendix H, Response to Comments, pp. H-26 to 27. The response explains that information about Japanese exports was used to benchmark the historic data (1965 to 2004) that forms the basis for projecting demand for the next 20 years. It also explains that data about recent domestic end markets has been available since 2000, although the data can be difficult to verify because some projects are first shipped to US ports and then overseas, a fact that may artificially inflate figures for domestic markets. Nevertheless, Brackley and Haynes (2006) allocated their projections for total derived demand to foreign export markets (17 percent) and domestic markets (83 percent). In doing so they used RPA projections of future demand to allocate the relative percentages of domestic and foreign markets for Alaskan forest products. More detailed explanations can also be found in the FEIS Vol. 2, Appendix G, p. G-5 and in Brackley and Haynes (2007). See AR, Doc. #1063, pp. 20-28.

I find the Brackley and Haynes timber demand study made reasonable assumptions about foreign and domestic markets based on the available published information on those markets.

- *Conservation strategy*

Appellant contends the FEIS fails to adequately disclose and respond to scientific criticism of the 1997 conservation strategy (NOA #0025, pp. 12-14). Section 2 of Appendix D of the FEIS (Vol. 2, pp. D-1 to 50) contains a detailed history of the development of the 1997 conservation strategy. The FEIS indicates that the conservation strategy has been updated to accommodate changes made by the 2008 amended Forest Plan (pp. D-17 to 19), identifies new and relevant science published since the 1997 conservation strategy (pp. D-19 to 26), and clearly identifies modifications made to the strategy by the 2008 amendment (pp. D-26 to 50). Criticisms of the 1997 conservation strategy are addressed in Response to Comments, Appendix H of the FEIS (Vol. 2, pp. H-137, 147, 148, 157). The appeal record likewise contains multiple documents addressing issues associated with the conservation strategy (e.g., AR, Doc. #0010, #0413, and #1610). The Record of Decision discusses the conservation strategy in some depth (ROD, pp. 15-20, 52-53), noting specifically the multiple reviews and evaluations of the strategy, issues of uncertainty, and importance of the strategy as the basis for the Forest Plan's management of wildlife resources.

I find the record contains a thorough and unbiased discussion of the 1997 conservation strategy, consistent with NEPA regulatory requirements (40 CFR 1502.24).

- *Small OGR*

Appellant contends the Forest Service failed to disclose critical information in the DEIS, "the existence of a directive to ignore the recommendations of the interagency biologists and the disagreement of those biologists with the small OGR implementation" (NOA #0029, p. 83).

No direction to "ignore the recommendations of the interagency biologists" exists. The FEIS discusses the consequences of changes to the small OGR (old-growth reserves) system (pp. 3-226 to 228, and 3-262 to 265) and displays current science and analysis to support its contention that the amended LRMP will continue to provide for the long-term viability of goshawks (FEIS Vol. 2, Appendix D, pp. D-22 to 25, D-33 to 47), consistent with NEPA requirements at 40 CFR 1502.24.

- *Marten*

Appellant contends the agency failed to take a hard look at impacts to marten populations (NOA #0029, pp. 50-65). Effects and consequences of implementing the amended Forest Plan are displayed. See FEIS Vol. 1, pp. 3-234 to 235, 278 to 279. My review found the impacts to marten were reviewed by a variety of experts in 2006. See FEIS Vol. 2, Appendix D, pp. D-65 to 66; AR, Doc #1610). The FEIS also displays new science relevant to marten management (FEIS Vol. 2, Appendix D, pp. D-34 to 37) and acknowledges current uncertainty in marten science (FEIS Vol. 2, Appendix H, p. H-170). The marten retains its status as a management indicator species (FEIS Vol. 1, Table 3.10-1, p. 3-224), and a defined monitoring schedule has been established (Forest Plan, Table 6-1, p. 6-10). The Tongass Forest Plan, the FEIS, and the associated planning record contain a complete record of the agency's hard look at impacts to marten, consistent with NEPA requirements.

Response to Comments

Several appellants variously contended the FEIS did not adequately respond to comments on the DEIS. These contentions were reviewed against the NEPA implementing regulations that state, "An agency preparing a final environmental impact statement shall assess and consider comments both individually and collectively, and shall respond by one or more of the means listed below, stating its response in the final statement" (40 CFR 1502.9 (b)). An agency may respond in several ways, including supplementing, improving, or modifying its analysis (40 CFR 1503.4(a)). NEPA regulations recognize the need to summarize comments and responses when voluminous, but require that substantive comments be attached to an FEIS whether or not they are thought to merit individual discussion by the agency in the text of the statement (40 CFR 1503.4(b)). The regulations also require that an agency "shall discuss at appropriate points in the final statement any responsible opposing view which was not adequately discussed in the draft statement and shall indicate the agency's response to the issues raised" (40 CFR 1502.9 (b)).

Public comments on the DEIS and respective Forest Service responses are included in the FEIS Volume 2, Appendix H, Comments and Responses. Comments are summarized in the form of public concern statements. Agency responses describe how and where (as relevant) each comment is addressed in the planning documents, consistent with 40 CFR 1503.4 (a).

One appellant contends they provided extensive energy and utility corridor recommendations, but that they were ignored by the Forest Service (NOA #0024, pp. 4, 5). The Forest responded specifically to the comments made by the appellant regarding various road and utility corridors on Admiralty Island, explaining why they were not added to the Transportation and Utility Systems Land Use Designation, and explaining when such proposals might be considered in the future. See FEIS Vol. 2, Appendix H, p. H-128.

Another appellant contends the Forest Service provided only "limited responses" to several of the appellant's comments pertaining to the potential transfer of lands involving karst and cave resources (NOA #0027, pp. 23-24). As acknowledged by the appellant (NOA #0027, p. 24), the Forest did provide responses to their comments. See FEIS Vol. 2, Appendix H, pp. H-72 and 74. The Forest specifically notes that the cumulative effects analysis was expanded in the FEIS to discuss potential effects of future land exchanges on karst resources. See FEIS Vol. 2, Appendix H, p. H-77. In addition, Appendix H to the FEIS includes responses to other public comments regarding the protection of karst and cave resources. See FEIS Vol. 2, Appendix H, pp. H-71 to 77. The Forest Plan establishes goals and objectives (Forest Plan, p. 2-5), management direction (Forest Plan, Chapter 3) and forest-wide standards and guidelines for karst and cave resources (Forest Plan, pp. 4-23 to 26). Appendix H to the Forest Plan includes specific direction on the management of karst and cave resources. See Forest Plan, pp. H-1 to 10. The FEIS thoroughly discusses the affected environment and discloses environmental effects on karst and caves. See FEIS Vol. 1, pp. 3-22 to 30. Appendix C to the FEIS addresses certain types of land ownership adjustments that could potentially occur and discloses potential impacts to karst. See FEIS Vol. 2, Appendix C, pp. C-3, and 9 to 12.

An additional appellant contends a number of comments regarding specific old-growth reserves were submitted on the DEIS, but the FEIS "entirely fails to acknowledge, or respond to, these comments" (NOA #0029, p. 143).The Forest acknowledges receipt of the suggested changes, and responded by describing the process used for mapping the old-growth reserves (OGRs). See FEIS Vol. 2, Appendix H, p. H-145. Appendix H to the FEIS includes responses to many other public comments regarding OGRs and the conservation strategy (FEIS Vol. 2, Appendix H, pp. H-136 to 156). The interagency small old-growth reserve review process is also described. See FEIS Vol. 2, Appendix D, pp. D-27 to 28.

The FEIS contains ample evidence that the public comment requirements of the NEPA regulations at 40 CFR 1503.4 have been followed. Responses to public concerns are of sufficient substance and detail to meet NEPA requirements at 40 CFR 1502.9(b). I find no violation of law or regulation.

National Forest Management Act (NFMA)

Amendment

Appellant contends the failure to "make a new revised forest plan directly contravenes the court's directive" that the Forest Service make a new revised forest plan for the Tongass (NOA #0027, p. 12). Another appellant contends changed conditions, including those resulting from climate change, necessitate preparation of a revised land management plan (NOA #0029, pp. 5-9, 152).

The regulations at 36 CFR 219.10 provide the general procedures of the forest planning process, including amendments and revision, and give wide latitude to the Forest Supervisor regarding the timing of Forest Plan amendment and revision. Forest plans should "ordinarily" be revised every 10 to 15 years, or whenever the Forest Supervisor determines that conditions or demands in the area have changed significantly. See 36 CFR 219.10(g). The Forest Supervisor is required to review conditions on the lands covered by the plan every 5 years to determine whether conditions or demands have changed significantly, and may initiate a revision in response to that determination. The regulations also give the Forest Supervisor the authority to determine the purpose and need, major issues, and resource uses and opportunities to be addressed in the planning process. See 36 CFR 219.12(b).

The Tongass National Forest adopted its first forest plan in 1979. Work to revise the plan began in 1987, and the ROD revising the plan was issued in 1997. The Under Secretary of Agriculture issued a new Forest Plan ROD in 1999, which was set aside in 2001 as a result of litigation. Other litigation, occurring at the same time, resulted in the Forest Plan EIS being supplemented to evaluate roadless areas on the Tongass for wilderness recommendations, and a Forest Plan Supplemental EIS (SEIS) was completed in 2003. Subsequent litigation challenging the 1997 revised forest plan resulted in a decision by the U.S. Court of Appeals for the Ninth Circuit in *National Resources Defense Council v. U.S. Forest Service*, 421 F.3d 797 (9th Circ. 2005). The 2005 Court decision identified particular errors with the 1997 LRMP and FEIS, including consideration of timber demand, the range of alternatives related to the timber demand, and the cumulative analysis related to activities on non-National Forest System lands. See ROD, pp. 1-2; FEIS Vol. 1, pp. 1-1 to 2. This amendment, like the 2003 SEIS evaluating roadless areas, represents a special circumstance in which the Forest has engaged in planning activities to respond specifically to flaws identified by the Courts. This amendment, then, completes the process of revising the Tongass Forest Plan that was initiated in 1987. See ROD, p. 1. It integrates past decisions (the 1997, 1999, and 2003 RODs, and all plan amendments completed to date) to resolve confusion regarding current management direction for the Tongass. See AR, Doc. #0001, FR Vol. 71, No. 59, p. 15373.

As required by regulation, the Forest conducted a 5-year review of the Revised Forest Plan. That review, completed in December 2004, identified areas in the Forest Plan that needed updating, but did not identify the need for a full-scale revision. See AR, Doc. #0199, p. 18. As part of this amendment process and to update the management situation, the Forest conducted a number of resource updates, including a review of carbon and climate change issues related to forest management on the Tongass. See AR, Doc. #0979, p. 23. The Forest acknowledges that climate change is occurring and affecting the forests of Southeast Alaska, but notes that there is considerable uncertainty regarding the specifics of those changes and how they will affect the extent of fire, tree mortality, blowdown, air quality, fish and wildlife, subsistence, and recreation. See FEIS Vol. 1, pp. 3-11 to 14, 18 to 20. In response to that uncertainty, the Regional Forester chose to focus on "continued management of the Tongass for resiliency in the face of uncertain but anticipated change." See ROD, p. 50. This approach was supported by the scientists of the Pacific Northwest Research Station, who also noted that prototypes are only now being developed for considering and incorporating into the planning process the "perpetual uncertainty and continual change" associated with climate change. See AR, Doc. #0967, p. 2.

The Regional Forester clearly states that the purpose and need for this Amendment is to respond to the 2005 decision by the U.S. Court of Appeals for the Ninth Circuit, and to update the Plan in response to the 5-year evaluation completed in 2005. See ROD, pp. 2, 43; FEIS Vol. 1, p. 1-2. To respond to the Court in a timely manner, the Forest focused its analysis on those items identified by the Court. See FEIS Vol. 2, Appendix H, p. H-7. I find that the Regional Forester conducted the required reviews and appropriately determined that a revision is not needed at this time in accordance with 36 CFR 219.10(g).

Analysis of the Management Situation (AMS)

Appellant contends the planning record does not comply with 36 CFR 219.12 because the AMS fails to include any discussion of the potential to resolve outstanding public issues. More specifically, the appellant contends the AMS fails to account for a greatly diminished reliance on extractive resource industries within the regional economy, and it fails to reflect a declining trend for Tongass timber use (NOA #0027, pp. 1-4). I disagree with the appellant.

The 1982 planning regulations (36 CFR 219.12 (e)) state that the analysis of the management situation shall include "a determination of the potential to resolve public issues and management concerns." The Forest prepared an AMS in 2006 and 2007 which "incorporates previous work and includes a broad-based update of all resources but it focuses on those areas needed to comply with the Purpose and Need, which is to respond to the Ninth Circuit Court's decision identifying errors relating to timber demand, the range of alternatives related to market demand, and cumulative effects on non-NFS lands, as well as adjustments identified in the 5-Year Plan Review" (AR, Doc. #0979, p. 4). Therefore, the Forest is resolving the outstanding public issue by compiling with the court's decision. In addition, the 2006/2007 AMS incorporates the AMS completed in 1990 in preparation for developing the forest plan. Based on the purpose and need and public input during the development of the Environmental Impact Statement, the Forest identified three key issues that were used for alternative development and further analyses. See FEIS Vol. 1, pp. 1-6 to 8. "Providing a sufficient timber supply to meet the market demand" is part of one of the key issues. See FEIS Vol. 1, p. 1-7. Therefore, the AMS meets the requirement of 36 CFR 219.12 to determine the potential to resolve outstanding issues.

Timber Demand Analysis

Appellent contends the Forest Service failed to properly assess timber demand and consequently the projected supply (allowable sale quantity) is too low to "support a viable timber industry" (NOA #0017, pp. 7-9, 14-22). Based on my review, I cannot agree with the appellant.

Forest planning regulations at 36 CFR 219.12 require completion of an analysis of the management situation that includes "[p]rojections of demand using best available techniques, with both price and nonprice information" (36 CFR 219.12(e)(3)). There are several studies of timber demand for southeastern Alaska available to the Regional Forester for consideration. The Regional Forester acknowledges that estimating long-term market demand is inherently uncertain and that there are potential risks to the forest products industry if the projected supply objective is set too low and potential risks to other NFMA values if the allowable sale quantity (ASQ) is set too high. See ROD, pp. 29-30. The FEIS reviews and considers other reports, factors, and analyses related to demand. See FEIS Vol. 1, pp. 3-504 to 508. The Regional Forester outlines in detail all the factors and viewpoints considered and his rationale in selecting Alternative 6. See ROD, pp. 33-35. He also notes that should market demand exceed the estimated ASQ in the first decade, the forest could adjust the ASQ for the second decade through existing Forest Service directive (Manual and Handbook) procedures. See ROD, p. 34.

Another appellant contends use of the "Morse methodology" resulted in an over-estimation of the timber demand and caused the agency to give "timber an unfair precedence over other forest uses" (NOA #0027, pp. 8-11). The Morse methodology is used to establish a system that seeks to build and maintain sufficient volume of timber under contract and is a key input in the development of the annual timber sale program. See Forest Service Handbook 2409.18, R-10 supplement. FEIS Appendix G (p. G-7) further explains that the Morse methodology is used by the agency to comply with the "annual demand" component of the Tongass Timber Reform Act (TTRA). The derived demand projections in Brackley et al. (2006a) is one component in the Morse analysis. See AR, Doc. #0247. Appendix G (pp. G-10 to 12) provides further detail on this analysis method.

The Record of Decision explains the rationale behind use of the Morse methodology in meeting estimated annual market demand for timber as required by the TTRA. See ROD, pp. 29-30. The appellant argues that the low number of timber sales sold by the Tongass National Forest over the last decade is evidence that demand projections have been inflated. Sale statistics are not an

accurate representation of market demand. The FEIS documents the complex factors affecting timber sale performance over the last decade. See FEIS Vol. 1, pp. 3-331 to 335. The ROD (pp. 66-67) discusses the challenges of timber sale economics in southeastern Alaska. These performance factors are not related to the economics of market demand estimates.

I find that the analysis of timber demand was appropriately conducted in a scientifically based approach to maintaining or increasing the volume under contract as dictated by industry needs and behavior. The decision provides for a reasonable projected supply given current demand projections.

- *Projected harvest schedules for meeting demand*

Appellant contends recent harvest levels and the time needed to prepare and offer timber sales demonstrate the projected harvest schedules (ROD, p. 33) are unworkable and therefore violate NFMA (NOA #0018, pp. 10-11). Table 3, depicted on p. 33 of the ROD, shows the annual volume that would be needed to meet each of the four scenarios developed in Brackley et al. (2006). Planning regulations at 36 CFR 219.16 state, in part, "the selected forest management alternative includes a sale schedule which provides the allowable sale quantity." The ASQ for the selected alternative is 267 million board feet. Table 3 is not a sale schedule as defined in the regulatory guidance for NFMA. The ROD explains the Regional Forester's rationale for adopting the Timber Sale Program Adaptive Management Strategy as part of balancing the requirements of TTRA Section 101 with other public and resource values and it discusses the timber economic challenges faced by the agency in southeastern Alaska. See ROD, pp. 64-67.

It appears the appellant has misunderstood the NFMA requirement for harvest schedules. The appellant believes that the Timber Sale Program Adaptive Management Strategy is unworkable for a number of operational reasons; however, the strategy is a method of implementing decisions made in the forest plan—particularly the classification of lands suitable for timber production and determination of the allowable sale quantity—and so my review does not take in issues connected with it.

Economic Analysis

Appellants contend the analysis of economic efficiency violates planning regulations at 36 CFR 219.12(g) because monetary values were not consistently estimated for nonmarket goods and services (NOA #0028, pp. 53-54; NOA # 0029, pp. 124-128). The Forest Service has broad discretion as to the manner in which it conducts the required economic analysis under 36 CFR 219.12(g). Neither the NFMA nor the NEPA mandate that every public benefit or environmental protection measure be quantified with a monetary value.

Under the NFMA regulations, forest plans shall provide for multiple use and sustained yield in a way that maximizes net public benefits (36 CFR 219.1(a)). For estimating the effects of alternatives, a broad range of alternatives are formulated to provide an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits, consistent with resource integration and management requirements (36 CFR 219.12(f)). The regulations further explain that net public benefits are "the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index" (36 CFR 219.3). The expected real dollar value of outputs would be calculated "to the extent that monetary values can be assigned to non market goods and services,

using quantitative and qualitative criteria when monetary values may not be reasonably assigned" (36 CFR 219.12 (g)(3)(ii)).

Section 102(2)(B) of the NEPA acknowledges non-quantifiable benefits: "Identify and develop methods and procedures, …which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations." This requirement is further clarified in the NEPA regulations: "To assess the adequacy of compliance with section 102(2)(B) of the Act the [EIS] shall, when a cost-benefit analysis is prepared, discuss the relationship between that analysis and any analyses of unquantified environmental impacts, values, and amenities. For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations" (40 CFR 1502.23).

The FEIS extensively discusses the regulatory requirements (FEIS Vol. 1, pp 3-544 to 545), the rationale for not assigning monetary values to all nonmarket goods and services (FEIS Vol. 1, pp. 545 to 546; FEIS Vol. 2, Appendix H, pp. H-54 to 56), discusses and displays representative values where available, and acknowledges the importance of these values (FEIS Vol. 1, pp. 3-546 to 556; FEIS Vol. 2, Appendix H, pp. H-49 to 50, 53 to 56). Finally, the Regional Forester discusses in great detail the rationale for his decision, with most of that discussion devoted to such nonmarket goods and services as fish and wildlife habitat, biodiversity, recreation, roadless areas, and ecosystem services. See ROD, pp. 15-43. He makes clear that despite the difficulties of monetizing these values, he has given them full consideration. See ROD, p. 18. Clearly, the economic efficiency analysis is only one piece of information considered in the decision, and a large portion of the FEIS is spent evaluating potential effects that cannot be reasonably assigned a monetary value at this time. The Regional Forester explicitly states that "[t]he fact that the Final EIS does not assign a monetary value to ecosystem services does not lessen their importance in the decision-making process" (ROD, p. 51).

I disagree with the appellant that "the analysis and decision could be better informed with a side-by-side comparison of monetary values associated with resource extraction with resource conservation." Such a comparison is not required by NFMA or NEPA. I find that the Regional Forester has fully met the requirements of NFMA, 36 CFR 219.12(g), and NEPA with the economic analysis in the FEIS.

Management Direction

- *Strategy for protection from climate change impacts*

Appellant contends the Tongass plan does not have a strategic framework to protect forest resources to address present and future impacts of climate change (NOA #0028, pp. 73-74). In fact, there is no specific requirement for forest plans to contain such a strategic framework under the 1982 planning rules. However, a strategic framework may serve as a way to meet a variety of other planning requirements such as species viability.

The Tongass amended plan does contain a conservation strategy for biodiversity. This is described in the ROD (pp. 15-16, 19). It is further described in Volume 2, Appendix D, of the FEIS. There was also a review of conservation science and its applicability to the Tongass Forest Plan and an Interagency Conservation Strategy Review. See AR, Doc. #0413 and #1610. The conservation strategy review emphasized an adaptive approach and the use of monitoring to ascertain impacts of

climate change. The ROD (pp. 19, 50-51) explains that the plan uses an adaptive approach and includes an updated monitoring section to gain further information about climate change.

Based on my review, I have concluded that the Tongass Forest Plan does have an adequate strategy to protect forest resources and address future impacts of climate change.

Land Use Allocation

Appellant contends the allocation of a Minerals LUD (Land Use Designation) violates NFMA because it elevates mineral development over all other forest uses (NOA #0027, pp. 15-16). Regulations at 36 CFR 228 ensure surface resource protection, while encouraging the orderly development of mineral resources on National Forest System lands. See FEIS Vol. 1, p. 3-353. The rationale for expansion and management of the Minerals LUD overlay specifies it is "managed according to the underlying LUD until such time that mineral … development is approved, if at all" (ROD, p. 5). The Tongass Forest Plan establishes goals and objectives for minerals and geology to "[p]rovide for environmentally sound mineral exploration, development, and reclamation in areas open to mineral entry and in areas with valid existing rights that are otherwise closed to mineral entry" (Forest Plan, pp. 3-122 to 127). Appendix H to the FEIS includes responses to public comment on this specific issue. See FEIS Vol. 2, pp. H-58 to 59, 75 to 76.

In addition to standards and guidelines for the Minerals LUD (Forest Plan, pp. 3-122 to 127), Chapter 3 of the Forest Plan identifies minerals and geology standards and guidelines to be applied specific to each management prescription. In addition, the Plan displays forest-wide standards and guidelines for managing minerals (Forest Plan, pp. 4-38 to 40). Together, these standards and guidelines provide broad, programmatic direction necessary to manage the resources and uses of the Tongass National Forest in a coordinated and integrated manner. They influence how subsequent site specific project decisions are made and how other management activities are conducted (Forest Plan, p. 5-2).

I find that the FEIS does not elevate minerals development over all other uses and is consistent with the 1982 NFMA regulations at 36 CFR 219.11 (Forest plan content), 36 CFR 219.22 (Mineral resource), and 36 CFR 219.27 (a)(7) (Resource protection).

Wilderness Recommendations

An appellant contends failure to revise the Forest Plan makes the decision to not propose additional wilderness recommendations or legislated LUD II areas on the Tongass arbitrary and capricious. Appellant further contends the ROD violates NFMA requirements to consider recommendations for Wilderness designation during plan revision by putting their consideration off until the next plan revision in 10 to 15 years (NOA #0027, pp. 11-12). Another appellant contends significant analysis and ranking systems, including the Wilderness Attribute Rating System, have identified watersheds with high biological value, yet the Forest Plan fails to recommend any of them for Wilderness designation (NOA #0023, pp. 1-3).

The first appellant is correct that the NFMA implementing regulations at 36 CFR 219 generally require consideration of potential wilderness areas during the Forest Plan revision process. (This Forest Plan amendment was prepared pursuant to the 1982 planning regulations, which describes the required consideration of potential wilderness at 36 CFR 219.17. Appellant incorrectly cites the 2008 planning regulations at 36 CFR 219.7(6)(ii) (NOA #0027, p. 12)). The regulations do not require consideration of potential wilderness designation as part of a plan amendment, however.

As noted previously in this document (see National Environmental Policy Act, Environmental Consequences, Roadless areas), this EIS is tiered to the 2003 Supplemental EIS for Roadless Areas Evaluation for Wilderness Recommendations (2003 SEIS). See FEIS Vol. 1, p. 1-1. The Forest evaluated recommendations for adding wilderness to the Tongass National Forest in the 2003 SEIS. In the course of that analysis, all Tongass National Forest lands were assessed to determine if they were suitable for wilderness consideration based on the Wilderness Act and procedures in the Forest Service's forest planning directives. The Final SEIS included 109 inventoried roadless areas and analyzed eight alternatives in detail, ranging from the No Action Alternative to recommending all inventoried roadless areas for wilderness designation. The amount of recommended wilderness designation considered in the action alternatives ranged from approximately 0.7 million to 9.6 million acres. See AR, Doc. #244, ROD, pp. 1, 3. In the ROD for the 2003 SEIS, the Regional Forester concluded that there was not a need for additional wilderness in the Tongass National Forest at that time, noting that "Congress itself concluded in ANILCA that it had provided sufficient wilderness areas in Alaska and that the need for new wilderness areas had been obviated." See AR, Doc. #244, ROD, p. 8. In 2003, Congress passed the Omnibus Appropriations Act, Pub. L. 108-7 (Feb. 20, 2003), stating in part that "[t]he Record of Decision for the 2003 Supplemental Environmental Impact Statement for the 1997 Tongass Land Management Plan shall not be reviewed under any Forest Service administrative appeal process, and its adequacy shall not be subject to judicial review by any court of the United States" (149 Cong. Rec. H707-01, H779 (2003)). This would indicate that Congress continues to believe there is not a need for additional wilderness areas in Alaska.

As part of the current amendment process, the Regional Forester reviewed the 2003 decision not to recommend any new wilderness areas, and determined it should remain in effect. See ROD, p. 7. The Regional Forester clearly states that consideration of wilderness designation is outside the scope of the analysis. See ROD, p. 7; FEIS Vol. 2, Appendix H, pp. H-90 to 91. I find the Regional Forester's decision is in compliance with the relevant regulations at 36 CFR 219.17.

Viability

- *General*

Appellant contends the FEIS lacks quantitative population viability analysis to support the assertion in the ROD that the decision ensures the maintenance of viable wildlife populations as required by NFMA (NOA #0026, p. 4). The NFMA viability requirement (36 CFR 219.19) states that, "Fish and wildlife habitat shall be managed to maintain viable populations of … species in the planning area." There is no explicit requirement to conduct specific quantitative analyses.

The FEIS addresses the direct, indirect, and cumulative effects of the Plan on the viability of wildlife (FEIS Vol. 1, pp. 3-219 to 308), fish (FEIS Vol. 1, pp. 3-63 to 93), and plants (FEIS Vol. 1, 3-9 to 117). Appendix D in Volume 2 of the FEIS contains a detailed discussion of viability or populations for several key species (pp. D-51 to 86). Appendix F in the FEIS displays the Biological Assessment for species with status under the Endangered Species Act. The Plan provides standards and guidelines to provide for the ecological conditions that promote population viability for fish (Forest Plan, pp. 4-9 to 14), plants (Forest Plan, pp. 4-41 to 42), and wildlife (Forest Plan, pp. 4-89 to 100). The Regional Forester summarizes the status of species on the Tongass National Forest and discusses concerns raised during the planning process about the viability of certain species. See ROD, pp. 18-28. I find that the assessment of species viability for the amended Forest Plan meets the standards set forth in 36 CFR 219.19.

Another appellant contends the Forest Service has inappropriately recharacterized the results of a 1997 scientific panel's review of species viability and that consequently the 2008 amended Forest Plan fails to meet the requirements for wildlife population viability (NOA #0025, pp. 14-15).

The FEIS discusses the 1997 scientific panel's review of species viability in several places (e.g., FEIS Vol. 1, pp. 3-219 to 308; FEIS Vol. 2, Appendix D, pp. D-51 to 86; and FEIS Vol. 2, Appendix F, pp. F-1 to 27). The Record of Decision also discusses the work of the species viability panel (ROD, pp. 12, 19-20, and 25). I do not find a mischaracterization of the results of the 1997 scientific review panel on species viability. The viability discussions presented in the FEIS are consistent with the requirements of NFMA (36 CFR 219.19).

- *Wolf*

Appellant contends the FEIS includes no foundation for concluding that the deer carrying capacity has been satisfied, and so the agency fails to "protect wolf viability" (NOA #0029, p. 111). The Forest acknowledges the importance of deer populations to wolf viability. See FEIS Vol. 2, Appendix D, p. D-63. The results of the independent wolf viability rating panels from 1995 and 1997 are also presented. See FEIS Vol. 2, Appendix D, pp. D-63 to 65. Appendix D also discusses the connections between the 1995 and 1997 viability panels and the alternatives analyzed for the 2008 FEIS (FEIS Vol. 2, Appendix D, p. D-83), stating that wolf viability under the proposed alternative would be similar to the conditions under the 1997 Plan. Assumptions behind, and the application of the DeGayner Deer Model are displayed, including a discussion of the interaction between deer population levels and wolf viability. See FEIS Vol. 2, Appendix B, pp. B-31 to 32. The planning record also contains a scientific review of the deer model stating that the model provided a "useful and reasonable estimate of deer habitat values for large-scale analyses" and its application was "appropriate for the Tongass-wide analysis of the 1997 TLMP." See AR, Doc #1896. Effects to wolves are displayed. See FEIS Vol. 1, pp. 3-236 to 239. Standards and guidelines for deer (Forest Plan, p. 4-92) and wolves (Forest Plan, p. 4-95) are included in the amended Plan. Both deer and wolves have retained management indicator species status, as selected for the 1997 Forest Plan. See ROD, p. 27. The FEIS contains sufficient information and analysis, in conjunction with requirements for future monitoring to ensure that the Tongass amended Plan complies with NFMA viability requirements (36 CFR 219.19) for wolf.

- *Brown bear*

Appellant contends the plan amendment violates the requirement to assure sustainable populations of wildlife because recommendations from the Alaska Department of Fish and Game pertaining to bear management were not included (NOA #0029, p. 118). The changes suggested by the state were not adopted because the existing Tongass Plan components (Forest Plan, pp. 2-4, 9, 3-62, 4-92 to 93, and 6-10) have provided for healthy brown bear populations in the planning area (ROD, p. 57), and monitoring data and analyses (FEIS Vol. 1, pp. 3-235 to 236; FEIS Vol. 2, Appendix D, pp. D-65 to 67, 83 to 84) indicate they will remain viable and abundant for the foreseeable future, consistent with the requirements of NFMA (36 CFR 219.19).

- *Marten*

Appellant contends the plan amendment fails to include measures to ensure viable and well-distributed populations of marten (NOA #0029, pp. 50-65). Effects and consequences of implementing the amended Forest Plan are displayed. See FEIS Vol. 1, pp. 3-234 to 235, 278 to 279. Impacts to marten were reviewed by a variety of experts in 2006 (FEIS Vol. 2, Appendix D, pp. D-65 to 66; AR, Doc. #1610), including the impact of authorized marten harvests (AR, Doc. #0489,

pp. 2-87 to 94). The FEIS also displays new science relevant to marten management (FEIS Vol. 2, Appendix D, pp. D-34 to 37) and acknowledges current uncertainty in marten science (FEIS Vol. 2, Appendix H, p. H-170). Standards and guidelines specific to martens are given in the Forest Plan (pp. 4-96 to 97). The marten retains its status as a management indicator species (FEIS Vol. 1, Table 3.10-1, p. 3-224), and a defined monitoring schedule has been established (Forest Plan, Table 6-1, p. 6-10). The record demonstrates that measures taken by the Tongass National Forest to provide for the distribution and viability of marten are consistent with the available science and data. The decision complies with NFMA viability requirements (36 CFR 219.19).

- *Queen Charlotte goshawk*

Appellant contends the standards and guidelines in the Plan fail to provide for diversity as it pertains to goshawk (NOA #0029, pp. 84-85). Standards and guidelines specific to goshawks are displayed in the Forest Plan (pp. 4-99 to 100). Standards and guidelines general to wildlife habitat planning (Forest Plan, pp. 4-89 to 90) and legacy forest structure (Forest Plan, pp. 4-90 to 91) are also included in the amended Forest Plan. An overview of the decision as it pertains to goshawk and goshawk standards and guideline is presented by the Regional Forester. See ROD, pp. 22-23. The science used to develop standards and guidelines for goshawk are presented. See FEIS Vol. 1, pp. 3-226 to 229, 262 to 265; FEIS Vol. 2, D-22 to 24, 33 to 37, 44 to 48, 55 to 58, 79 to 82, and 89). Queen Charlotte goshawk retains its status as a sensitive species (FEIS Vol. 1, Table 3.10-1, p. 3-224), and monitoring protocols for sensitive species are displayed in the Forest Plan (Forest Plan, Table 6-1, p. 6-10). Two independent reviews have evaluated the framework for goshawk viability in the Tongass National Forest, including a status review from the Fish and Wildlife Service and a review of the conservation strategy by academicians, biometricians, independent contract biologists, Forest Service and Fish and Wildlife Service specialists, and biologists from the State of Alaska. See AR, Doc. #0944, #1610. The scientific credibility and efficacy of the standards and guidelines appear to have been fully disclosed and well established. The amended Forest Plan provides for the viability of goshawk, consistent with the requirements of NFMA (36 CFR §§ 219.19 and 219.27).

- *Risk Assessment*

Appellants contend the analysis of risk to species viability was inadequate due to the use of old and flawed data (NOA #0029, pp. 144-148). Appendix D of the FEIS describes the 1996-1997 conservation panel assessments (pp. D-51 to 86). The Appeal Record contains a reconciliation (display of responses to each comment) of a review conducted by the USDA Forest Service Pacific Northwest Research Station in early 2008 (AR, Doc. #0964). The information available indicates that the amended Plan will provide for the viability of species consistent with the requirements of 36 CFR 219.19.

- *Endemic mammals*

Appellants contend the standards and guidelines in the plan amendment fail to provide viable, well distributed populations of endemic mammals (NOA #0029, pp. 85-99). The 1997 panel assessments are discussed in detail, (FEIS Vol. 2, Appendix D, pp. D-51 to 52, 69 to 73, including Table D-13), and highlights new science specific to endemic taxa that has developed since the 1997 panel assessments (FEIS Vol. 2, Appendix D, p. D-26). The FEIS discusses endemism in general (FEIS Vol. 1, pp. 3-170 to 171), summarizes current knowledge related to the management of endemic mammals (FEIS Vol. 1, pp. 3-248 to 250) and highlights science specific to endemic mammals (FEIS Vol. 1, pp. 3-289 to 290). Reviews and evaluations of the 1997 assessment have been conducted by a wide variety of experts, internal and external to the Forest Service. See AR, Docs. #1610, #0964, and #0413. Standards and guidelines specific to endemic animals are included in the

Forest Plan (p. 4-97). Monitoring requirements for endemic animals are likewise displayed in the Plan (p. 6-10, Table 6-1). The Regional Forester discusses the conservation of endemic animals. See ROD, pp. 24-25. The analysis of effects to endemic animals appears to have been extensive and well supported by science, consistent with viability and distribution requirements in NFMA (36 CFR 219.19).

Suitability for Timber Production

Appellants contend the Forest Service failed to meet the planning regulation requirements for analysis of timber suitability because improper cost and revenue data were used (NOA #0028, pp. 41-49; #0029, p. 129). The Tongass National Forest is not required to consider economics in the timber suitability analysis. Section 102(d) of the Tongass Timber Reform Act (TTRA) amended the National Forest Management Act by stating, "All provisions of section 6(k) of the National Forest Management Act of 1976 (16 U.S.C. 1604(k)) shall apply to the Tongass National Forest except that the Secretary need not consider economic factors in the identification of lands not suited for timber production." The FEIS discusses this amendment. See FEIS Vol. 1, pp. 3-320, 345 to 346. By nature of section 102(d) of the TTRA, I find the Tongass plan amendment did not need to consider economics in the timber suitability analysis.

One of the appellants contends the costs of NEPA, engineering support, and maintenance, operations and land management were not considered and that cost figures are outdated (NOA #0028, pp. 43-44). I disagree with the appellant. The FEIS clearly displays and footnotes that estimated costs for NEPA and engineering support are included in the Timber Variable Cost values and land management costs are listed as a separate line item. See FEIS Vol. 1, Table 3.22-25, p. 3-547. The FEIS Appendix B, on p. B-11, discloses that road construction, maintenance, and repair costs were included in the calculation of Spectrum coefficients. The FEIS states that the cost figures used in Table 3.22-25 are averages of FY 2005 and 2006 costs. See FEIS Vol. 1, pp. 3-547, 548. These represent the most recent cost figures available when the Plan amendment was prepared. I conclude that the Forest used proper costs in its economic analysis and that the cost figures used were the most recent available.

The appellant also contends that the use of pond log value rather than expected stumpage prices is in violation of 36 CFR 219.14(b)(1) which states that "Direct benefits are expressed as expected gross receipts to the government. Such receipts shall be based upon expected stumpage prices and payments-in-kind from timber harvest …" (NOA #0028, pp. 45-46). Again, I disagree with the appellant. The planning regulation at 36 CFR 219.14(b)(1) only states that receipts shall be based upon expected stumpage prices. As displayed in appeal record document #2417 (Tongass Forest Plan Cost and Values, March 2006, slide 17), stumpage value is a component of pond log value and thus serves as the basis for receipt figures used in the amended Plan. I find the Forest Service has not violated 36 CFR 219.14(b)(1) by displaying pond log value rather than stumpage value in the economic analysis and thus used proper revenue data.

The same appellant contends the Tongass plan amendment violates planning regulations at 36 CFR 219.14 by including lands that are not cost efficient for timber production among those areas found to be suitable for timber production (NOA #0028, pp. 50-53). Section 102(d) of the Tongass Timber Reform Act (TTRA) amended the National Forest Management Act by stating "All provisions of section 6(k) of the National Forest Management Act of 1976 (16 U.S.C. 1604(k)) shall apply to the Tongass National Forest except that the Secretary need not consider economic factors in the identification of lands not suited for timber production." The FEIS discusses this amendment to NFMA. See FEIS Vol. 1, pp. 3-320, 345 to 346. I find the Tongass plan amendment does not violate

planning regulations at 36 CFR 219.14 by including lands that are not cost efficient for timber production among those areas found to be suitable for timber production.

Allowable Sale Quantity (ASQ)

Appellant contends the supply of economically viable timber has been overestimated, which will lead to an over-harvest of stands that are among the most valuable and accessible (NOA #0026, p. 3). I disagree with the appellant. The Forest calculated a Model Implementation Reduction Factor (MIRF) to account for the fact that when harvest activities occur, a certain percentage of the assumed suitable acres will be ineligible for management due to a number of physical, biological, or economic considerations. See FEIS Vol. 2, Appendix B, p. B-24. A detailed description of how the MIRF factors were calculated can be found in Appeal Record (AR, Doc. #1246) as well as in the FEIS (Vol. 2, Appendix B). The MIRF factor for each alternative was then applied to the mapped suitable acres to arrive at the number of suitable acres available for timber production for each alternative. See FEIS Vol. 1, Table 3.13-8, p. 3-337.

In addition to the use of the MIRF factor, the Forest also applied additional measures (constraints) to limit the amount, type, and composition of timber that can be harvested. These constraints are discussed in detail in Appendix B of the FEIS Volume 2. While thirteen operational constraints are discussed in that appendix, the constraints of interest for this appeal point are:

- Strata Harvest Control constraint. This ensures that the model does not cut all of the most valuable timber early in the planning horizon.
- Logging Operability constraint. This ensures that the model does not cut all of the cheapest and most accessible acres early in the planning horizon.
- Watershed Entry constraint. This minimizes cumulative watershed impacts from harvest operations.
- Goshawk/Marten, Legacy, and Old Growth Retention constraints. One of these constraints is applied to each action alternative to ensure that, depending upon the objective of each alternative, sufficient productive old-growth remains in each VCU to meet the objectives of the alternative.

Based upon the above discussion, I conclude that Forest has provided a reasonable estimate of the supply of economically viable timber. I further conclude that sufficient measures have been put into place to ensure there will not be over-harvest of stands that are among the most valuable and accessible.

Appellant contends the plan violates planning regulations at 36 CFR 219.16 because it does not contain a 10-year timber sale schedule (NOA #0025, p. 16). The National Forest Management Act says that the plan shall include “the planned timber sale program and the proportion of probable methods of timber harvest within the unit necessary to fulfill the plan (36 U.S.C. 1604 (f)(2)).” The planning rule (36 CFR 219.16) states “the selected forest management alternative includes a sale schedule which provides the allowable sale quantity” and “alternatives shall be formulated that include determinations of the quantity of the timber that may be sold during each decade.” As stated in 36 CFR 219.16 (b), “The sale schedule of the management alternative selected in accordance with Sec. 219.12 provides the allowable sale quantity (ASQ) for the first plan period.”

Therefore, the allowable sale quantity of the selected alternative is the sale schedule for the first 10 years of the plan. The Forest lists the ASQ by decade for each alternative in the FEIS. See FEIS Vol. 1, Table 2-20, p. 2-59. The ASQ for the first decade under the selected alternative is listed in the Record of Decision on p. 6. Therefore, I find the Forest has met the requirements of 36 CFR 219.16 and NFMA related to allowable sale quantity.

Scientific Basis

The NFMA regulations require the interdisciplinary team to "collect, assemble, and use data, maps, graphic material, and explanatory aids, of a kind, character, and quality, and to the detail appropriate for the management decisions to be made" (36 CFR 219.12(d)). NEPA regulations require that "[a]gencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements" (40 CFR 1502.24).

- *Watershed-scale protection*

Appellant contends the recommendations of two panels of Forest Service biologists were ignored because only one of six watersheds containing major, intact fish-producing streams has been scheduled for watershed scale protection. Additionally, appellant contends no provisions have been made for the other five watersheds (NOA #0019, pp. 2-3). The amended Forest Plan establishes goals and objectives for fisheries (Forest Plan, p. 2-4), soil and water resources (Forest Plan, p. 2-7), and wetlands (Forest Plan, p. 2-8). Forest-wide standards and guidelines for managing fish and fish habitat are included. See Forest Plan, pp. 4-9 to 14. Standards and guidelines for soil and watershed management specifically address the needs of fisheries. See Forest Plan, p. 4-65 and 66. The amended Forest Plan identifies several fish/fish habitat specific monitoring items. See Forest Plan, p. 6-9. The Forest describes how the Anadromous Fish Habitat Assessment was incorporated into the amended Forest Plan. See FEIS Vol. 2, Appendix D, pp. D-6, 11. In his decision, the Regional Forester discusses the basis for fish habitat protections found in the Forest Plan. See ROD, pp. 18-19. The Forest acknowledges that risks to aquatic resources would increase with more harvest. See FEIS Vol. 1, pp. 3-63 to 93, especially pp. 3-82 to 84, and 3-90 to 92). However, in conjunction with stipulated monitoring, the standards and guidelines and project-level (site specific) evaluations, including watershed analyses (where required by standards and guidelines, Forest Plan, pp. 4-9 to 14) provide protections to major fish producing streams and watersheds. This issue is discussed in detail in the Response to Comments (FEIS Vol. 2, Appendix H, pp. H-67 to 68).

I find that available information applied to the analysis of the maintenance and protection of fish producing streams was consistent with NFMA requirements at 36 CFR 219.12 and 36 CFR 219.19 (1982).

- *Climate change*

Appellants contend the amended Tongass Forest Plan does not provide for adequate protection of forest resources because best available science pertaining to climate change was not utilized and studies and projections of climate change associated events were mischaracterized (NOA #0028, pp. 72-73 and #0029, pp. 11-17).

The appellants allege that the Forest Service inadequately reviewed and dismissed the scientific literature on climate change and inappropriately discounted predicted impacts from these changes due to uncertainty of likelihood, timing, location and magnitude. The appellants further allege the analysis fails to discuss the consistencies of climate change projections or expert panels that concluded there were high probabilities of certain climate change impacts that the FEIS has

identified as uncertain, and that this constitutes a mischaracterization of the science that substantially affects the entire analysis.

The Tongass Regional Forester was required to consider the best available science in amending the Tongass Forest Plan, consistent with the planning rule (36 CFR Part 219.35(a), November 9, 2000) and as affirmed in the Interpretive Rule (Federal Register, September 29, 2004). As the plan amendment was done using the planning rule of 1982, other specifications related to science in 36 CFR 219.35(a) are not applicable.

As described in the ROD (pp. 53-54), the Tongass planning process involved extensive involvement of science in the revision and amendment of the plan. Climate change was one of the areas that had an informal science review following the DEIS. See ROD, p 54. A discussion of several studies occurs in Appendix H of the FEIS. See FEIS Vol. 2, pp. H-19 to 26. The Tongass further considered 41 separate documents related to climate change. Relevant elements of some of those documents are discussed in various parts of the FEIS.

The Tongass appeal record does not include a summary of the scientific literature considered, nor does it contain a specific review from scientists assessing whether the Tongass has appropriately characterized the likelihood of impacts from climate change. In the absence of such a synthesis or summary, a detailed review was conducted for the specific arguments of the appellants related to climate change science and the adequacy of the science considered as revealed primarily in the FEIS and ROD and their supporting citations.

The FEIS begins a discussion on the background of climate change on pp. 3-11 to 12, summarizing climate change concerns related to the Tongass National Forest and Southeast Alaska in general. This includes a brief discussion of three science sources cited frequently by the appellants:

- Intergovernmental Panel on Climate Change (IPCC) (AR, Doc. #0708)
- Alaska Specific Studies (Juday et al.) (AR, Doc. #0714)
- Climate Change Predicted Impacts on Juneau (Kelly et al.) (AR, Doc. #0690)

The FEIS (Vol. 1, pp. 3-11 to 12) summarizes the basic assumptions about changing climate in this initial section. This includes a basic recognition that

- Southeast Alaska has experienced a strong warming trend;
- A substantial increase of days with gale force winds has occurred;
- Retreat of glaciers is occurring;
- Warmer winters have allowed more insects to survive the winter triggering insect outbreaks that have affected trees across the landscape; and,
- Model predictions suggest increases in rain and decreases in snow at lower elevations in SE Alaska. Models also predict decreases of about 10 percent in summer rainfall. However, these models vary in how much of the Tongass may be affected by these predictions.

The FEIS further specifically discusses how these changes in climate are likely to affect water (Vol. 1, pp. 3-50 to 51), fish (Vol. 1, pp. 3-92 to 93), plants (Vol. 1, pp. 3-116 to 117), yellow cedar (Vol. 1, p. 3-120), insects (Vol. 1, pp. 3-119 to 122, 124-125), fire (Vol. 1, pp. 3-121 to 126), forest health (Vol. 1, pp. 3-124 to 126), biodiversity (Vol. 1, pp. 3-203 to 205), Kittlitz's murrelet (Vol. 1, p. 3-262), endemism (Vol. 1, pp. 3-170, 249), wildlife (Vol. 1, p. 3-296), windthrow or blowdown (Vol. 1, pp. 3-11, 121 to 122, 124 to 125), timber (Vol. 1, pp. 3-329, 340, 351), and recreation and tourism

(Vol. 1, pp. 3-400 to 401). These discussions frequently include citations to appropriate science. In these sections and specifically on pp. 3-19 to 20 of the FEIS, there is a discussion of the risks posed by climate change to the resources to the Tongass. The section concludes by indicating that there is general agreement about warming and declines in summer precipitation, but that there is uncertainty about specific predictions and greater uncertainty about how climate change will affect the resources of the Tongass.

The appellants specifically allege the FEIS fails to disclose specific probabilities or confidence in predictions from the applicable studies. See NOA #0029, pp. 6-7. In particular, appellants cite this in regard to the IPCC report and the Juday et al. study. I agree that both of these do contain some descriptors of confidence in their predictions. However, the IPCC report is global in its predictions and cannot be extrapolated to specific effects to resources on the Tongass. The Juday et al. predictions are focused on the forests of SE Alaska and will be discussed further.

Appellants assert failures to consider the appropriate science and mischaracterization of science with respect to stream temperatures and effects on water and fish, fire risk, blowdown or windthrow, and insect and disease outbreaks. The results of my review for each of these follow.

Water and Fish: The Juday et al. study (AR, Doc. #0714) indicates there is "some confidence" of higher stream temperatures and low flow events that can cause anadromous fish mortality. Kelly et al. also indicates a concern about the effects of climate change altering the ecology of salmon by forcing early entry into the marine environment when food resources are low or absent. See AR, Doc. #0690. The appellants also suggest there is evidence that these changes are already occurring. To support this, they identify a variety of studies, publications and newspaper articles indicating rising temperatures, low flows or fish kills. They further cite Tongass monitoring reports (AR, Doc. #1137) as indicating a problem of fishkills at Staney Creek and Prince of Wales Island that were associated with low rainfall, low stream flow, and high air temperatures. They cite another monitoring report (AR, Doc. #1135) as indicating these same problems occurred during the summer of 2001 at a number of monitoring sites across Prince of Wales Island. The appellants further assert that the Tongass has relied on a single study on Prince of Wales Island to maintain that there is little difference between logged and unlogged watersheds.

The FEIS states that the Juday et al. paper "postulates" warmer, drier conditions that could increase stream temperatures and cause seasonal low flow, both of which could adversely affect salmon. See FEIS Vol. 1, p. 3-20. The word 'postulate' implies an assumption or proposition as true and is consistent with the Juday, et al. paper's assertion of some confidence. That language also suggests some uncertainty. The FEIS also describes a paper by Oswood et al. (AR, Doc. #0693) that discusses the melting of glaciers partially offsetting possible low flows. On pp. 3-50 to 51 of the FEIS there is discussion acknowledging the model projections of decreased summer rainfall and increased temperature. It also suggests uncertainty that a small reduction (10 percent) in summer rain would affect overall streamflows and acknowledges brief periods when temperature standards have been exceeded in both harvested and unharvested watersheds and that this could become more frequent with rising air temperatures. The FEIS further suggests that a 10 percent decline in summer rain is still likely to leave the Tongass in a wet condition. See FEIS Vol. 1, pp. 3-92 to 93. It further acknowledges the concerns regarding stream conditions having adverse effects on fish. It draws the conclusion of uncertainty on the ultimate effects upon fish. The FEIS (Vol. 1, p. 3-67) also describes several studies including a summary of studies on the effect of timber harvest, riparian buffers and the effects on stream temperature. The FEIS briefly discusses monitoring results (Vol. 1, pp. 3-67 and 68) including a description of habitat conditions and warm weather that have experienced fish die-offs.

Other papers raised by the appellants show incidences and concerns of rising water temperatures or fish problems but these are generally not in SE Alaska. They do not clearly demonstrate the predicted pattern or increases in water temperature, more low flows, or greater salmon problems associated with climate change in SE Alaska.

Fire Risk: The Juday et al. study (AR, Doc. #0714, p. 41, Fig. 3.16) indicates there is some confidence of increased risk of forest fire in southeast Alaska. This increased risk is recognized in the FEIS (Vol. 1, pp. 3-121) with no characterization of its confidence but with some discussion of the nature of its impact. Other citations from the appellants such as the IPCC reports that assert increased risk of climate change are either global or applicable to South Central or Central Alaska.

The FEIS discusses risk of increased fire and the relationship to climate change in some detail including a summary of the forest fire record (Vol. 1, p. 3-121) and a discussion of the factors influencing fire on the Tongass (Vol. 1, p. 3-126). There is also discussion in Appendix H of the FEIS regarding fire. See FEIS Vol. 2, p. H-23. These sections frequently cite appropriate science.

Blowdown and Windthrow: The Juday et al. study (AR, Doc. #0714, p. 41, Fig. 3.16) indicates there is high confidence of increased risk of large scale tree blowdown and increased tree windthrow around clearcuts. However, the paper also acknowledges (pp. 37-38) that the increased frequency of gale force winds has not corresponded to an increase of large-scale blowdowns. It suggests that the rate of windthrow or blowdown may have increased but that there are not records to support this. The Juday et al. study is described in the FEIS (Vol. 1, pp. 3-11, 19, 122, and 125). Cumulatively, these descriptions identify the report's prediction of high risk of blowdown and windthrow along with the other conclusions of the report. The appellant mentions other information either from other parts of the Pacific Northwest or historic records pertinent to the Tongass that indicate that large blowdown events have occurred. See NOA #0029, pp. 24-26. They do not present evidence to indicate that a sustained pattern of increased blowdown is occurring in connection with climate change.

The FEIS also summarizes results of forest health monitoring (Vol. 1, pp. 3-12, 19, 125). It also cites other studies describing blowdown and windthrow on the Tongass (Vol. 1, pp. 3-121 to 122). It clearly acknowledges the risk of increased blowdown and windthrow associated with climate change.

Insect and Disease outbreaks: The Juday et al. study (AR, Doc. #0714, p. 41, Fig. 3.16) indicates there is high confidence of forest damage from black-headed budworm outbreaks associated with climate change. This is described on FEIS Vol. 1, p. 3-119. Appellants also refer to evidence of spruce needle aphid outbreak cited on FEIS Vol. 1, p. 3-120. Other information cited by the appellants identifies increased insect influences in areas outside of the Tongass such as the Kenai or British Columbia. The appellants indicate that the Forest Service has acknowledged these effects.

Beyond this, the FEIS (Vol. 1, pp. 3-119 to 121) cites a variety of studies regarding the various insects and diseases that affect the Tongass. The FEIS (Vol. 1, p. 3-124) also discusses the threat posed by insects and diseases that includes consideration of climate change.

The appellants also identify concerns about information on climate change on wildlife, yellow cedar, Kittlitz's murrelet, and mammal endemism. These are also covered in the FEIS in the sections previously identified.

Based on my review, I find the Tongass planning effort considered the best available science on climate change applicable to the forest and has not mischaracterized that science. The Regional

Forester is clear in the ROD that potential effects of climate change will continue to be monitored and changes in Forest Plan management direction incorporated as the changes warrant.

Mineral Resource

Appellant contends the Forest Service "completely ignored the requirement to forecast the potential need of withdrawal for areas from development" as required by NFMA planning regulations (NOA #0027, p. 16). NFMA implementing regulations require that "[m]ineral exploration and development in the planning area shall be considered … and … recognized to the extent practicable in forest planning" (36 CFR 219.22 (1982)). The appellant asserts "(d) The potential for future mineral development and potential need for withdrawal of areas from development" be addressed. The amended Plan directs the Forest to "[s]eek withdrawal of specific locations where mineral development may not meet LUD objectives" and to "[m]aintain inventory of surficial geology, geomorphic features, geologic hazards, and paleontological resources" (p. 2-5).

The FEIS discloses that "[o]ther than mineral resources that are currently under development … the Forest Service does not have sufficient information to identify any specific mineral development as reasonably foreseeable. See FEIS Vol. 1, p. 3-364. Forest responses to public comment received on the DEIS state that "[n]o new withdrawals are proposed under any of the proposed alternatives. …For projects requiring a federal action (such as approval of a mining plan of operations), impacts to surface resources would be analyzed and disclosed on a site-specific basis, as required under NEPA" (FEIS Vol. 2, Appendix H, p. H-84).

In addition, NFMA implementing regulations require "All management prescriptions shall … be assessed prior to project implementation for potential physical, biological, aesthetic, cultural, engineering, and economic impacts and for consistency with multiple uses planned for the general area …" (36 CFR 219.27 (a)(7) (1982)).

I find the FEIS appropriately considered information from a variety of sources pertaining to the potential for mineral development and withdrawal consistent with NFMA requirements at 36 CFR 219.22 and 36 CFR 219.27 (a)(7).

Monitoring

Appellant contends that the monitoring and evaluation plan of the Tongass does not directly address climate change impacts (NOA #0028, pp. 74-75). Land management plan monitoring requirements are established at 36 CFR 219.12 (k). Under that planning rule, there are no provisions that explicitly require monitoring of climate change impacts. However, the Regional Forester explains the potential effects of climate change will be monitored through the Tongass' Monitoring and Evaluation Plan (Forest Plan, Chapter 6) and other monitoring programs, including the Alaska Region's forest health program and long-term forest inventory system. The Regional Forester also notes the Forest Plan's monitoring provisions have been updated to better address the effects of all change. See ROD, p. 51.

In reviewing the Tongass monitoring plan I find it contains a number of indicators related to climate change issues. See Forest Plan, pp. 6-1 to 20. These include habitat and populations of fish and wildlife species, habitat relationship of mammalian endemic species, insect and disease occurrences, extent of snowpack and consideration of biodiversity, including windthrow. The plan makes clear that it is not the only source of monitoring information, and other federal agencies may provide information useful to monitoring.

Based on my review, I find the monitoring and evaluation requirements in the Tongass Forest Plan comply with planning regulations with respect to monitoring of potential effects related to climate change.

Alaska National Interest Land Conservation Act (ANILCA)

Section 505

Appellant contends the Forest Service violated Section 505 of ANILCA by placing mineral development as a higher priority than protection of other forest resources, including fisheries and the water quality that supports them (NOA #0027, p. 18). In support of this contention, appellant cites to the portion of the Plan pertaining to Minerals and Geology, the goal of which is to "provide for environmentally sound mineral exploration, development, and reclamation in areas open to mineral entry." See Forest Plan, p. 2-5. In further support of this claim, appellant cites to a portion of the FEIS, which states that "[t]he intent of the Minerals LUD designation is to encourage exploration and development of locatable minerals in areas of high mineral potential, while taking other resource values into account." See FEIS Vol. 1, p. 3-359.

Section 505(a) of ANILCA requires the Secretary of Agriculture to maintain habitats of anadromous fish and other fish species to the maximum extent feasible and to maintain their present and continued productivity when such habitats are affected by mining activities on national forests in Alaska. See 16 U.S.C. Sec. 539b. As appellant notes, possession of a mineral claim does not guarantee a right to mine and does not override the Forest Service's authority to regulate the nature of the mining activity on the Tongass (NOA #0027, p. 16). Mining rights are subject to federal and state regulation, and any mineral development undertaken on the Tongass would be subject to conditions established in a plan of operation and other regulatory authorities exercised by the Forest Service. See 36 CFR 228, Minerals.

The 2008 Plan's goal for minerals and geology is to provide for environmentally sound mineral exploration and development in areas open to mineral entry and to seek withdrawal of mineral entry where mineral development may not meet LUD objectives. See Forest Plan, p. 2-5. The Minerals LUD overlay has expanded by approximately 80,000 acres from the 1997 Forest Plan, although this expansion does not mean that these additional acres will be subject to mining, and does not override agency regulations governing mining practices and environmental mitigation if mining were to occur.

The minerals management prescription in the 2008 Plan indicates that the Forest was cognizant of its responsibilities to manage mineral development consistent with its responsibilities under Section 505 of ANILCA. The desired condition for minerals development, for example, is to allow for mining so that any effects on other resources are minimized to the extent feasible and all legal resource protection requirements are met. Regarding mining activities and impacts on fisheries, the Plan management prescription for mining calls for the present and continued productivity of anadromous fish and other food fish to the maximum extent feasible, citing to Section 505(a) of ANILCA. Mitigation measures, rehabilitation, and monitoring of mining impacts to fish habitat or populations are to be identified in environmental documents and plans of operations for mining activities. See Forest Plan, pp. 3-123 to 127.

The 2008 Plan's provisions pertaining to minerals development and exploration reflect a commitment by the Forest to adhere to the resource protection and environmental mitigation

requirements set forth in ANILCA, NEPA, and other authorities. Therefore, I conclude that the Forest Plan amendment is consistent with the requirements under Section 505 of ANILCA.

Section 506

Appellant Kootznoowoo, Inc. contends certain planning maps covering lands and corridors in the vicinity of Angoon have been modified from previous planning documents to eliminate inclusion of the corridors. Appellant further contends that by failing to depict areas referenced in Section 506 of ANILCA, important property rights belonging to them and their shareholders may have been damaged (NOA #0024, pp. 1-3).

Section 506 of ANILCA recognizes the necessity to reconcile the national interest in preserving the natural and recreational values of Admiralty National Monument with the economic and cultural needs and expectations of Kootznoowoo, Inc. Section 506(a)(3)(C) grants to appellant all right, title and interest to certain lands in the Copper River Base within 660 feel of shore, while reserving to the United States development rights, ownership of the subsurface, timber rights, and the right of public use and access, consistent with the rights of subsistence users under ANILCA.

As set forth in the Forest's response to comments, this Plan amendment responds to a narrow set of issues defined by the Ninth Circuit Court of Appeals in its 2005 decision and to some additional issues identified in the 5-year Plan Review. These maps are not intended to illustrate all aspects of Forest resources. Nevertheless, the Angoon Hydroelectric Project will be included in the Transportation and Utility Systems LUD on the Forest Plan map. See FEIS Vol. 2, Appendix H, p. H-8. More importantly, the property rights possessed by Kootznoowoo, Inc. as a result of enactment of Section 506 of ANILCA cannot be diminished or abrogated by the Forest Service's depiction or omission of such property interests on maps developed as part of the ROD. I find no violation of Section 506 of ANILCA.

Title VIII

Appellant contends that "maintaining merely viable populations of deer will not meet demands for deer by local subsistence or sport hunters" and therefore conflicts with the ANILCA Title VIII requirement that the needs of rural residents be given priority when managing wildlife and fisheries in Alaska (NOA #0026, p. 5).

ANILCA, Title VIII, requires the Forest Service to manage for "the conservation of healthy populations of fish and wildlife" for subsistence purposes (Section 802), consistent with sound management principles. Subsistence use is discussed in detail in the FEIS (Vol. 1, pp. 3-419 to 436). This section of the FEIS includes a description of the legal basis for subsistence, a discussion of effects, identification of subsistence use areas, and a summary of the ANILCA determinations contained in the FEIS for the 1997 Tongass Forest Plan Revision (Vol. 1, pp. 3-433 to 436). Although the amended Plan does not now impact subsistence uses, the Record of Decision details potential risks of full implementation of the amended LRMP, and states that ANILCA Section 810(a)(3)(A) may be appropriately applied as a justification if future restrictions on subsistence uses become necessary. See ROD, pp. 60-61. I find the decision to be consistent with ANILCA in this regard.

Section 810

Appellant contends that the Forest Service failed to comply with Section 810 of ANILCA in adopting the 2008 Forest Plan amendment by failing to prohibit logging and road construction in many areas of importance to subsistence users. Appellants assert that the Record of Decision (ROD) does not protect areas of importance to subsistence users to give the agency more flexibility in offering timber sales (NOA #0025, p. 16).

Section 810 of ANILCA provides that, in determining whether to permit the use, occupancy, or disposition of public lands under any provision of law, the head of the agency having jurisdiction over such lands shall evaluate the effects of such 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. Before authorizing use, occupancy, or disposition of public lands, the agency head must provide notice to State government and local communities, hold a hearing in the affected area, and make a determination that any significant restriction of subsistence uses is necessary, involves the minimal amount of public lands necessary to accomplish the purposes of the use, occupancy, or disposition, and reasonable steps will be taken to minimize adverse impacts to subsistence uses and resources resulting from such actions.

Appellants' contention that Section 810 of ANILCA is implicated is erroneous, because the 2008 Plan does not make a decision involving the use, occupancy, or disposition of lands that would trigger the requirements of Section 810. A decision to authorize road construction or a timber sale would be made in a separate, project-level determination that would be subject to NEPA and contained in a separate decision document. The 2008 Plan does not, standing alone, authorize any logging or road construction activities on the Tongass. See *Ohio Forestry Ass'n v. Sierra Club*, 523 U.S. 726, 729 (1998). Forest plans are programmatic, meaning that they establish direction and allowable activities for broad land areas, rather than schedule specific activities in specific locations. See FEIS Vol. 1, p. 3-429.

Furthermore, as the ROD indicates, the Forest endeavored to exclude roadless areas from the development land use determinations (LUDs) that allow timber harvesting and road construction as much as possible in each alternative analyzed in the Plan. See ROD, pp. 11-12. Over three quarters of roadless acres are included in the non-development LUDs under the preferred alternative. Of the 24 percent of roadless acres included in development LUDs, only 3 percent of roadless acres would be included in the suitable land base due to additional protections offered by standards and guidelines that would apply to these LUDs. See ROD, p. 39. None of the alternatives considered in the 2008 Plan would directly limit the use of the Tongass for subsistence purposes. While new road construction would likely result in new use patterns around some communities, these use patterns are not likely to lead to a significant restriction in subsistence uses or access to resources. See FEIS Vol. 1, p. 3-430.

Another appellant contends the 2008 Plan amendment and ROD fail to accord due weight to subsistence needs, resulting in a ROD that imposes significant restrictions to subsistence uses to achieve multiple use balancing goals, in violation of ANILCA (NOA #0029, p. 46). Appellant asserts that ANILCA directs federal agencies to consider whether proposed actions will present potential restrictions on subsistence resource uses and, if so requires the agency to make a determination that a "significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of public lands" (NOA #0029, p. 47, citing 16 U.S.C. sec. 3120(a)(3)).

The primary answer to appellants' assertion is that an ANILCA Section 810 evaluation and determination is not required for approval of a Forest Plan amendment, a programmatic-level decision that is not a decision to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of National Forest lands. Nevertheless, a forest-wide evaluation and determination was included for the Forest Plan revision as part of the Plan amendment to facilitate future project-level planning and decision making in compliance with ANILCA Section 810 (16 U.S.C. § 3120). See ROD, p. 61.

Appellants' contention that a determination under ANILCA regarding the necessity for a restriction on subsistence uses is erroneous, because the 2008 Plan does not make a decision or authorize a commitment of resources in an agency action that would trigger this obligation. A decision to obligate forest resources that might impose significant restrictions on subsistence use has not been made by this Plan Amendment. Such a decision would be made in a separate, project-level determination that would be subject to NEPA and contained in a separate decision document. The 2008 Plan does not, standing alone, authorize any commitment of forest resources that would restrict subsistence uses on the Tongass. See *Ohio Forestry Ass'n v. Sierra Club*, 523 U.S. 726, 729 (1998). Forest plans are programmatic, meaning that they establish direction and allowable activities for broad land areas, rather than schedule specific activities in specific locations. See FEIS Vol. 1, p. 3-429. The plan does not authorize by itself any land disturbing activities. See ROD, p. 61.

Appellants' concerns regarding the Forest's responsibility to protect and ensure the continued exercise of subsistence uses on the Tongass are legitimate, even if their claim that the Forest breached a duty owed them under ANILCA is flawed. The Forest did not neglect consideration of subsistence uses and needs in developing this Plan amendment. Under the Plan amendment, forest-wide standards and guidelines have been established to protect subsistence resources. While it is true that the Forest did not establish a separate subsistence LUD, the rationale that subsistence uses are more appropriately administered on all NFS lands rather than in certain designated areas is a legitimate approach, given the widespread exercise of subsistence rights across the Forest, whether for deer hunting, fishing, or use of forest products. In this spirit, each of the LUDs established include direction to follow the forest-wide standard and guideline involving subsistence uses. In addition, other forest-wide standards and guidelines, such as those pertaining to fish, wildlife, and riparian areas, provide for species habitat planning and protection, which benefit subsistence species and resources. See FEIS Vol. 2, Appendix H, p. H-95. The Forest will continue to work with the appropriate state agencies, local communities, the Southeast Alaska Federal Subsistence Advisory Council, and State Fish & Game Advisory Committees to analyze if changes need to occur with regard to specific subsistence resources and any of the Forest's management activities. See FEIS Vol. 2, Appendix H, p. H-95.

Contrary to appellants' assertions, the 2008 Plan Amendment does not impose significant restrictions on subsistence uses in violation of Section 810 of ANILCA.

Title XI

Appellant contends the Plan fails to adequately analyze utility corridor recommendations submitted by Kootznoowoo and other entities consistent with the method prescribed under Title XI of ANILCA. In particular, appellant alleges the amended Plan fails to analyze the costs and benefits for alternative transportation and utility corridors (NOA #0024, p. 4). Appellant cites to the National Forest Management Act (NFMA) as additional support for its challenge to this aspect of the Plan. Specifically, the appellant cites to 16 U.S.C. 1604(e), which requires that plan revisions assure that the Secretary assure that such plans provide for multiple use and sustained yield of products and

services. According to Kootznoowoo, the Plan's failure to recognize energy in the mix of products and services amounts to a failure to address the multiple use and sustained yield provisions of the law (NOA #0024, p. 4).

Title XI of ANILCA sets forth the process for considering applications for transportation and utility systems in and across conservation system units in Alaska. The process requirements cover filing applications for the approval of transportation and utility systems, notice requirements regarding the sufficiency of applications, requirements for complying with NEPA in analyzing applications, a process for considering the views of the State and other parties regarding applications, and a time frame for issuing a decision on applications. See 16 U.S.C. sec. 3161-65.

One of the stated goals of the amended Forest Plan is "To provide for, and/or facilitate the development of, existing and future major public Transportation and Utility Systems." See FEIS Vol. 1, p. 3-143. The FEIS specifically mentions those corridors specified in the MOU that the Forest Service and the State of Alaska recently signed. Most of these corridors are included in a separate LUD that overrides underlying LUDs. Those not included in the amended Plan represent alternatives to these corridors or appear to be unlikely to be developed during the life of the Forest Plan. The Forest will consider all proposals recommended by the State, as well as any reasonable alternative corridors, during project-level NEPA analysis. Some additional corridors were added to the FEIS after further discussion with the State of Alaska. See FEIS Vol. 2, Appendix H, p. H-127.

The Forest Plan does not approve any transportation or utility projects. As with any other proposed site specific activity, construction of a TUS requires further project-level NEPA analysis and decisionmaking. During that process, all reasonable alternative routes must be considered, even those that may not be foreseeable at the programmatic, Forest Plan stage. See ROD, p. 51. The appropriate time to analyze utility corridor recommendations submitted by the appellant, and the associated costs and benefits of such corridors, is when site specific transportation or utility projects are under consideration. Consequently, the objectives of the TUS LUD can be met without trying to identify on the LUD map every reasonable alternative route for every potential highway or utility system.

The ROD effectively summarizes the 2008 Plan's intent with respect to transportation and utility corridors in response to comments from State agencies and members of the public expressing concerns that not all potential TUS corridors were on the Forest Plan LUD map. Specifically, the ROD notes that Alaska Department of Transportation and Public Facilities (ADOT&PF) advised that several potential TUS routes identified in the Department's Southeast Alaska Transportation Plan were not included in the Draft EIS map. In response to these concerns, the Forest Service added a potential utility route for the community of Pelican to the LUD map in the Final EIS, and made other minor changes. In addition, the Plan's management direction for the TUS LUD has been clarified to improve its implementation, and to note that not all reasonable alternative routes for all potential TUS connections are—or can be—identified on the map. The Forest Service also will retain the information provided by ADOT&PF regarding alternative TUS routes in the planning record, to ensure this information will be available for any future land management decisions. See ROD, p. 52. In sum, I find that the 2008 Plan's provisions related to transportation and utility systems were consistent with the Forest's obligations under Title XI of ANILCA.

Section 1326

Appellant contends the Forest Service has effectively withdrawn lands totaling approximately 8,000 acres and additional acres of water resources in the Village of Angoon vicinity in violation of

Section 1326 of ANILCA by not recognizing the area as unique and of value to Kootznoowoo. The basis for this contention, according to appellant, is what appellant describes as the Plan's classification of certain lands as wilderness in proximity to Angoon for purposes of all analysis under the Plan (NOA #0024, pp. 3-4).

Section 1326 of ANILCA provides that federal agency action withdrawing more than five thousand acres of public lands within the State of Alaska may only occur when notice is provided in the Federal Register and both Houses of Congress. Such withdrawal shall terminate unless Congress passes a joint resolution within one year after the notice of withdrawal has been submitted to Congress. See 16 U.S.C. sec. 1326(a).

Lands immediately adjacent to Angoon are part of the Admiralty Island National Monument Wilderness and would not be affected by any of the proposed alternatives, but other areas within Angoon's community use area would be affected. See FEIS Vol. 1, p. 3-576. It is unclear from appellant's appeal where the 8,000 acres in the vicinity of Angoon are located. Nevertheless, as the FEIS states, the acreage allocated to wilderness and national monument status would remain unchanged under any alternative. See FEIS Vol. 1, p. 3-577. In addition, all of the National Forest System land within Angoon's community use area would be maintained in their current condition under all alternatives. See FEIS Vol. 1, p. 3-579. Alternative 6, the proposed alternative, is very similar to Alternative 5, the no action alternative, in terms of LUD allocations. See FEIS Vol. 1, p. 2-35. In sum, appellant's assertion that the 2008 Plan withdraws more than fire thousand acres of land without complying with the requirements of Sec. 1326(a) is unfounded.

Another appellant contends the decision violates Section 1326 of the ANILCA because it has the effect of establishing withdrawals in excess of 5,000 acres in the aggregate. The appellant bases this assertion on the argument that standards and guidelines which constrain timber harvesting are as that term is understood under ANILCA, which triggers certain requirements for notice and notification of Congress, action the Forest Service did not take prior to issuing the Plan amendment. Appellants point to beach fringes and stream buffers, and old growth reserves, as examples of the standards and guidelines constraining timber havesting (NOA #0017, pp. 5-6, 28-34).

Section 1326 of ANILCA provides that

> "no … 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."

16 U.S.C. §3213.

Appellant's assertion depends wholly upon whether the amended Forest Plan standards and guidelines constitute a withdrawal under Section 1326 of ANILCA. In support of this contention, appellants cite to *Shiny Rock Mining Corp. v. U.S.*, 825, F.2d 216 (9th Cir. 1987). The passage quoted by appellants is not part of the *Shiny Rock* decision. The quoted passage comes from *Lutzenhiser v. Udall*, 432 F.2d 328 (9th Cir. 1970), discussed below. Furthermore, *Shiny Rock* pertains to a challenge by a mining claimant to a determination of the Interior Board of Land

Appeals regarding the validity of a mining claim in an area that was withdrawn under a Public Land Order issued by the Bureau of Land Management prior to the filing of the mining claim. *Shiny Rock*, at 217. The Ninth Circuit's decision focused in part on whether the withdrawal of the land that later became subject to appellant's mining claims was properly noted in the land records, and the Ninth Circuit affirmed the IBLA's determination that the withdrawal had been properly noted in the land record at the time of the mining claim. *Shiny Rock*, at 219. With respect to appellant's claim that the Public Land Order withdrawing the subject lands was improperly promulgated, the Ninth Circuit remanded that issue to the district court to assess whether the PLO was issued consistent with federal law and regulations. Id. The court's remand to the district court for a determination whether the PLO in that case was properly promulgated does not signify anything about the meaning of standards and guidelines developed as part of a forest plan amendment. For our purposes, the *Shiny Rock* decision reveals nothing about whether standards and guidelines contained in the 2008 Tongass Plan Amendment constitute a withdrawal of public lands.

Appellants also cite to *Lutzenhiser v. Udall*, 432 F.2d 328 (9th Cir. 1970), to support their contention that the standards and guidelines in the 2008 Plan Amendment constitute a withdrawal. According to the Ninth Circuit in *Lutzenhiser*, the only question in that case was whether an order of the Division of Lands and Mineral Management purporting to classify the lands as suitable for transfer under the Small Tract Act was valid. *Lutzenhiser*, at 330. The Ninth Circuit affirmed the district court's determination that the BLM adhered to the procedural requirements applicable to issuance of such orders. The case, which predated FLPMA and ANILCA, does not support appellant's contention that the Plan Amendment's standards and guidelines constitute a withdrawal under the public land laws.

Multiple-use prescription and associated standards and guidelines for management areas (Land Use Designations in the case of the Tongass plan) are one of the decision components in a forest plan under the 1982 planning regulations. See 36 CFR 219.11 (1982). Standards and guidelines are not further defined by those regulations, but they are defined in the 2008 Tongass Forest Plan. A guideline is defined as "[a] preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives" (Forest Plan, p. 7-14). A standard is "[a] course of action or level of attainment required by the Forest Plan to promote achievement of goals and objectives" (Forest Plan, p. 7-40).

By contrast, a withdrawal involves the withholding of an area of federal land from settlement, sale, location, or entry, **under some or all of the general land laws**, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program. See Federal Land Policy and Management Act of 1976, 43 U.S.C. §1701. (emphasis added). The standards and guidelines in the amended Tongass Plan do not, in themselves, withhold federal land from settlement, sale, location, or entry, and do not do so pursuant to FLPMA or any other general land laws. Contrary to appellant's claim, therefore, the standards and guidelines in the 2008 Tongass Plan Amendment do not constitute withdrawals triggering the provisions of §1326 of ANILCA.

Subsistence Resources

Appellant contends the Forest's FEIS failed to take a hard look at the subsistence management implications for deer and ignored impacts to subsistence fisheries and other resources (NOA #0029, pp. 42-46). In support of this claim, appellant asserts that the Forest accorded too much weight to a market demand analysis for timber that was flawed, and in so doing failed to adequately protect subsistence resources. Given the uncertainties associated with this ecosystem and with the impacts

from climate change, appellant asserts the Forest must use a "large safety factor" to protect subsistence resources (NOA #0029, pp. 42-43).

In enacting ANILCA, Congress affirmed that the continued opportunity for subsistence uses by rural Alaska residents on public lands was essential to Native physical, economic, traditional and cultural existence. See 16 U.S.C. §3111(1). In this regard, Congress further provided that conservation of healthy populations of fish and wildlife requires that utilization of public lands in Alaska is to cause the least adverse impact possible on rural residents who depend on subsistence uses of the lands. See 16 U.S.C. §3112(1).

With respect to appellant's claims regarding consideration of the Plan amendment's impacts on deer and subsistence fisheries, the response to the issue of according due weight to subsistence uses applies here as well. See in this document, Alaska National Interest Land Conservation Act, Section 810. The Forest's commitment under the Plan to continue monitoring population trends and their relationship to habitat changes for MIS, as well as analyzing if the effects of management actions on subsistence users in rural Alaska communities are consistent with those estimated in the final proposed Forest Plan, will provide information to be used to determine whether changes in management direction are needed. See FEIS Vol. 2, Appendix H, p. H-94.

The FEIS contains an analysis of the effects of different alternatives considered in the Plan amendment on subsistence resources, with particular attention to alternatives' impacts on Sitka black-tailed deer. See FEIS Vol. 1, p. 3-428. The analysis of likely effects of the EIS alternatives on subsistence resources and uses is in two parts. Effects on subsistence resources and uses important to each rural community are discussed individually by community in the *Subregional Overview and Communities* section. Here, the Forest-wide evaluation is presented, based on general considerations in the three categories of effects previously identified: abundance and distribution, access, and competition. This general analysis relies on the community discussions and also on the Forest-wide effects analyses from the related resource sections (primarily *Fish* and *Wildlife*) where abundance and distribution are of concern. See FEIS Vol. 1, p. 3-428. When viewed as a whole, the ROD and FEIS for the 2008 Plan Amendment meet the NEPA and ANILCA requirements for analyzing impacts to subsistence resources.

Equal Protection Clause of the Constitution

Appellant contends inaccurate economic information regarding Angoon contained in the FEIS and relied upon by the Forest results in development of a Plan that violates the Equal Protection Clause of the United States Constitution, as well as the USDA's prohibition against discrimination. Appellant contends the unemployment figures cited in the Plan for Angoon, 13 percent, is actually over 90 percent (NOA #0024, p. 6). Appellant contends the Plan's prescriptions disproportionately impact Angoon in the area of access to affordable energy and the ability to access and utilize natural resources surrounding the community (NOA #0024, p. 6).

The Draft and Final EIS's contain substantial information about each community impacted by the Plan, including Angoon, and attempt to illustrate how each community might be affected under each alternative analyzed. The Communities section in the draft and final NEPA documents describes some of the limitations involved in attempting to predict the economic impacts of each alternative on individual communities. Indeed, the community analyses do not attempt to quantify economic impacts in absolute terms because this is simply not possible. See FEIS Vol. 2, Appendix H, p. H-57.

Data relied upon regarding Angoon was derived from the Alaska CRA Community Database. See AR, Doc. #0235, available at http://www.commerce.state.ak.us/dca/commdb/CF_COMDB.htm.

The Forest addressed the issue of environmental justice in Chapter 3 of the FEIS, Social and Economic Overview, consistent with its responsibilities under the USDA's policy against discrimination and the federal government's policy regarding Environmental Justice, set forth in Executive Order 12898. EO 12898 stipulates that agencies conduct their programs and activities in a manner that does not have the effect of excluding persons from participating in, denying persons the benefits of, or subjecting persons to discrimination under such programs, policies, and activities because of their race, color, or national origin.

In analyzing the effects of the alternatives on Angoon, the Plan details the socio-economic conditions of Angoon, relying upon data compiled by the State of Alaska as well as prior analyses conducted by the Forest during the 1997 Plan process. See FEIS Vol. 1, pp. 3-576 to 580. The Plan notes that, because of the wilderness status of lands surrounding Angoon as part of the Admiralty Island National Monument, these lands would not be affected by any of the Plan's alternatives. See FEIS Vol. 1, p. 3-576. This land designation constrains the range of alternatives to be analyzed in this Plan and also restricts the extent to which certain energy and natural resource development activities can occur. It is this land status, more than the preferred alternative under this Plan, which limits the kind and nature of energy and natural resource development in Angoon. Nevertheless, as the FEIS makes clear, the surrounding area and Angoon's community use area provide substantial opportunities for subsistence uses, one of the major sources of economic opportunity for the community. See FEIS Vol. 1, p. 3-579.

Regarding energy development, the Forest Service is currently conducting an environmental analysis of a proposed hydroelectric project advanced by appellant at Thayer Lake, approximately 6 miles from Angoon. Consistent with ANILCA Section 506, the Forest will issue a special use authorization for construction and operation of this project upon satisfactory completion of the NEPA analysis for this project.

Given the scope of the Plan and decisions made in it, I conclude that the Plan's analysis of socio-economic impacts on appellant are consistent with USDA policy prohibiting discrimination, EO 12898 involving Environmental Justice, and the Equal Protection Clause of the U.S. Constitution.

Alaska Native Claims Settlement Act (ANCSA)

Appellant contends the FEIS fails to adequately recognize the authority in ANCSA Section 22(f) and ANILCA section 1302(h) for Sealaska to receive lands outside current withdrawal areas (NOA #0022, pp. 7-8). I disagree with appellant on this contention.

ANCSA section 22(f) is a broad authorization for various federal agencies to exchange lands and interests in lands, including Native selection rights, for the purposes of "effecting land consolidations or to facilitate the management or development of the land, or for other public purposes." Similarly, section 1302(h) of ANILCA allows discretionary exchanges for purposes of that Act, including the exchange of lands in conservation system units.

The appellant's concern that authorities for Sealaska to receive lands outside current withdrawal areas are not adequately recognized in the FEIS was expressed in a comment on the DEIS. I find this concern was clearly acknowledged and adequately responded to in the FEIS. See FEIS Vol. 2, Appendix H, p. H-81. A land exchange is a voluntary real estate transaction between federal and

non-federal parties. The Forest Service's authority to exchange land pursuant to ANCSA, ANILCA, or other land exchange authorities is discretionary, and the determination of when and under what circumstances and conditions the Forest Service will consider an exchange proposal is within the purview of the agency, which must determine whether the proposal is in the public interest. See 36 CFR 254.3(b). As the response explains, conditioned on these determinations, it would be possible for Sealaska to receive land outside the withdrawal areas through exchange.

Tongass Timber Reform Act (TTRA)

Section 101

Several appellants raised various contentions that a key provision of the TTRA was not being met by the Tongass Forest Plan Amendment and its accompanying FEIS. Section 101 of the Act requires that the Secretary will, "to the extent consistent with providing for the multiple use and sustained yield of all renewable resources, 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." Appellants contend this provision of the TTRA is not being met because the Tongass Forest Plan overemphasizes conservation and protection of biodiversity, the timber demand analysis is tied to past harvest levels and supply requirements rather than presenting a true market demand, and the agency failed to adequately consider financial feasibility in its projections of the timber volume that would be made available to meet market demand.

- *Overemphasis on conservation and biodiversity*

Appellants contend the decision fails to meet the objective of providing a sufficient economic timber supply to meet the market demand and help maintain a vibrant economy in Southeast Alaska. Appellants further contend this failure was caused by an overemphasis on conservation and protection of biodiversity (NOA #0017, p. 4; NOA #0018, pp. 7-8, 12-13).

The Tongass National Forest used three key issues to develop alternatives and guide analyses in the Final Environmental Impact Statement: 1) protection of high value roadless areas from road development and timber harvesting activity; 2) seek to provide a sufficient timber supply to meet demand and help maintain a vibrant economy in Southeast Alaska; and 3) protection of wildlife habitat and diversity. See FEIS, pp. 1-7 to 8. The the basis for the analysis of the timber market is discussed in the Record of Decision (ROD) (pp. 30-35) and timber demand and supply studies are described in detail in Volume 2, Appendix G of the FEIS. In the ROD, the Regional Forester addresses how he considered demand for timber and reconciled that demand with other components of multiple use (including fish and wildlife habitat and biodiversity, recreation demand, and roadless areas) in the selection of an alternative. See ROD, pp. 15-18.

Appellants also contend several standards and guidelines in the plan amendment increase timber harvest costs and will result in a failure to adequately comply with TTRA's requirement to provide a supply of timber that meets the demand (NOA #0017, pp. 22-27).

The Regional Forester discusses market demand and the need for an integrated forest products industry in Southeast Alaska. See ROD, pp. 29-37. The timber suitability land classification and the ASQ established by the amended Forest Plan, with the application of the Timber Sale Program Adaptive Management Strategy, are projected to be sufficient to meet market demand. See ROD, pp. 34-35. The standards and guidelines referred to by the appellant were taken into consideration in

developing the ASQ of the various alternatives, including Alternative 6, the selected alternative. See FEIS Vol. 1, p. 3-337. The value of these standards and guidelines is described in the FEIS Vol. 1, pp. 3-105, 138, 175, 239, 260, 289; and FEIS Vol. 2, pp. D-38 and H-64.

As noted in FEIS Vol. 2, pp. D-32 and H-6, Alternative 7 does not include the constraints of concern to the appellant—legacy standard and guideline pertaining to marten and goshawk, Class III stream riparian buffers, beach buffers, and old growth reserves.

From my review of the appeal record I find the Regional Forester and Tongass National Forest have complied with the TTRA by appropriately considering and disclosing the tradeoffs inherent in providing a supply of timber which seeks to meet annual and planning cycle market demand "to the extent consistent with providing for the multiple use and sustained yield of all renewable resources." The decision reflects an appropriate balance between the need to provide a supply of timber products that meets market demand and the need to conserve other forest resources.

- *Faulty demand analysis*

Appellant contends the decision violates Section 101 of the TTRA because the phased implementation approach (the timber sale program adaptive management strategy) and the timber demand analysis are faulty; specifically because they are tied to past harvest levels which "are not an indicator of either demand for timber or the market for timber" (NOA #0017, pp. 5, 10-13). I disagree with the appellant for the following reasons.

The timber sale program adaptive management strategy is described in the ROD as a strategy for implementing Alternative 6. The Regional Forester identifies the need to balance competing interests in the face of inherently uncertain timber demand and public interest in protecting roadless areas on the Tongass National Forest. See ROD, pp. 9-10. The agency has the discretion to decide where and how it will implement the selected alternative, including the annual market demand estimate, within the suitable timber land base.

In the Forest's analysis of timber demand and supply, the Morse methodology is used to establish a system that seeks to build and maintain sufficient volume of timber under contract and is a key input in the development of the annual timber sale program. See FSH 2409.18, R-10 supplement. The FEIS (Vol. 2, Appendix G, p. G-7) further explains that the Morse methodology is used by the agency to comply with the "annual demand" component of the Tongass Timber Reform Act. The derived demand projections in Brackley et al. (2006) are one component in the Morse analysis. See AR, Doc. #0247. The Regional Forester explains the rationale behind use of the Morse methodology in meeting estimated annual market demand for timber as required by the TTRA. See ROD, pp. 29-30.

Another appellant contends the Brackley et al. (2006) model used by the Forest Service does not comply with the requirements at Section 101 of the TTRA for an estimate of market demand. The appellant contends the study instead only provides "supply requirements" needed to fulfill four hypothetical timber industries (NOA #0028, p. 10). The appellant also specifically alleges the market demand analysis is flawed because it does not include a "pricing analysis" (NOA #0028, pp. 10-14).

I disagree with the appellant. As explained at length in Brackley and Haynes (2007), both the Brooks and Haynes model and the updated model used by Brackley et al. (2006) are examples of forest sector models that are based, in part, on the gap model format. See AR, Doc. #1063, pp. 20-24. This particular type of model explicitly considers only physical qualities and does not directly

consider prices and costs. These models have been peer reviewed over several years and are commonly accepted in the economic research community. These model types are specifically used for the RPA timber assessments for the contiguous United States. The model satisfies economic principles in that production equals consumption (with adjustments for trade). Gap models are specifically designed for production and consumption problems where the model defines the gap between physical estimates of supply and demand. See AR, Doc. #1063, p. 21. The model assumptions and inputs are explained at length in Appendix G of the amended Forest Plan. The FEIS (pp. 3-527 to 535) discloses how Brackely et al (2007) and other market demand indicators (current production levels, installed capacity, and minimum volumes required by processing facilities) are used in evaluating alternatives. The model does produce estimates of the supply required for each market demand scenario as it is designed to do.

I find that the method used by the Forest Service to estimate annual market demand is a reasonable, scientifically based approach to maintaining or increasing the volume under contract as dictated by industry needs and behavior. Regarding the lack of a pricing analysis, I find the appellant provides no reasonable explanation as to why the peer reviewed forest sector models used by the agency and others to estimate market demand are insufficient because of the absence of a pricing analysis. Neither the demand analysis nor the application of the Timber Sale Program Adaptive Management Strategy is in violation of the TTRA.

- *Failure to consider financial feasibility*

Appellant contends the Forest Service failed to consider the financial feasibility of timber sales in assessing whether the ASQ would supply the volume necessary to meet market demand. Appellants contend the acreage suitable for timber production that can support non-deficit timber sales is much smaller than the acreage used to calculate the ASQ (NOA #0018, pp. 3-5).

I disagree with the appellant. The Forest performed a Stage II Suitability Analysis and the methodology used and results of this analysis are provided in Volume 2, Appendix B of the FEIS. Each acre classified as suitable for timber harvest was analyzed to determine the costs and benefits for a range of management intensities. This analysis was done to provide insight into the overall economic condition of the suitable land base and what types of land are most cost efficient for management. This type of analysis is reasonable given that specific sale areas are not known at this time and economic conditions fluctuate greatly during the plan period.

Appendix A of the Tongass amended Forest Plan displays the estimated number of acres suitable for timber production after applying the Model Implementation Reduction Factor to take into account the limitations of available mapping. The suitable acres displayed in this appendix (Forest Plan, p. A-1) are scheduled for harvest based upon Forest Plan modeling. They are equal to the acreage that is scheduled for harvest by the model when the assumption is made that the maximum timber harvest permitted under the Forest Plan's ASQ is to be harvested over the long-term. The analysis documented in FEIS Volume 2, Appendix B provides an economic analysis for a range of management intensities. Individual timber sale economics are considered as part of the project-level decision to approve harvest of an area. Given that specific sale areas are not known at this time, it is not possible to conclude how much of this acreage can support non-deficit timber sales.

Section 203

Appellant contends the Forest Service failed to comply with the requirements in Section 203 of TTRA to collaborate on completion of a comprehensive study of the Kadashan LUD II

Management Area. The appellant also contends the Forest Service's denial of alternative requests by the City of Tenakee Springs is a violation of the same TTRA requirement (NOA #0027, pp. 21-22).

Contrary to the appellant's assertion, Appendix K of the FEIS prepared for the 1997 Tongass Forest Plan Revision (AR, Doc. #1368) contains the comprehensive study of the Kadashan LUD II Management Area as required by Section 203 of the TTRA. In 1999, then Under Secretary for Natural Resources and Environment, James Lyons, exercised his prerogative to perform a discretionary review of the appeal to the 1997 Tongass Forest Plan Revision. In his review decision, Mr. Lyons concluded that this comprehensive study of the Kadashan LUD II Management Area fulfills the requirements of Section 203 of the TTRA. I agree with his conclusion. Part A of the Study displays an assessment of the resources and values of the Kadashan LUD II Management Area. Part B provides an assessment of the need for, potential uses, alternatives to and environmental impacts of providing a transportation corridor route through the Kadashan river valley. These two parts of the report meet the requirements of Section 203 of the TTRA.

The TTRA does not contain any provision requiring the Forest Service to adopt any alternative requested by the City of Tenakee Springs. However, the TTRA did require the Secretary to prepare the report in consultation with the State of Alaska, the City of Tenakee Springs, and other interested parties. The appellant acknowledges their full participation in the preparation of this study. See NOA #0027, p. 20. The consultation record for the Kadashan LUD II Management Area study is found in Part B-1 of the study. This record clearly shows that the report was prepared in consultation with the parties required by Congress and other interested parties and thus meets the requirements of Section 203 of the TTRA.

Circuit Court Opinion

Appellant contends the Tongass plan amendment does not correct the problems identified by the Ninth Circuit Court of Appeals because the timber demand analysis examines market scenarios that are not realistic (NOA #0028, pp. 14-16, 22-32; NOA #0029, p. 120). I disagree with the appellants.

The Tongass Timber Reform Act states that "the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, 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" (P.L. 101-626). The 2005 Ninth Circuit Court of Appeals decision directs the Forest to correct the market demand projections for Tongass timber from those mistakenly used in the FEIS for the 1997 Forest Plan Revision.

The Record of Decision provides an overview of the methods used to determine timber demand on pp. 29-34. Timber demand and supply studies are discussed in Appendix G of the FEIS, Volume 2.. The Forest provides answers to public comments about the timber demand projections in the FEIS, Volume 2, Appendix H, on pp. H-26 to 29 and 32. In the Record of Decision the Regional Forester recognized that there is uncertainty associated with the prediction of timber demand and adopted the Tongass Timber Sale Program Adaptive Management Strategy as a method for addressing this uncertainty. See ROD, p. 29. Therefore, the Forest has revised their market demand projections for timber from the Tongass National Forest as directed by the 2005 Ninth Circuit Court of Appeals decision.

Energy Policy Act

Appellant contends the amended Plan shortcuts the intent of Section 368 of the Energy Policy Act regarding the planning and design of corridors for transportation of energy, including electricity (NOA #0024, p. 5). Section 368(b) of the Energy Policy Act of 2005 directs the Secretary of Agriculture and other specified Secretaries to identify corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal lands in states (including Alaska) other than the 11 contiguous Western States, and to schedule prompt action to incorporate the corridors into the applicable land use plans. Such joint planning is underway for the 11 Western States but has not yet begun for the other States. However, this is not the only regulatory direction covering identification of energy corridors on National Forest System lands. Section 503 of the Federal Land Policy and Management Act of 1976 has also provided direction for the designation of utility corridors.

The Regional Forester explains that the Transportation and Utility System (TUS) Land Use Designation was originally developed as part of the 1997 Plan. See ROD, p. 51. It is particularly important to note that the Regional Forester acknowledges the TUS Designation and map are not necessarily all-inclusive, that the Forest Plan does not approve any TUS projects, and that other reasonable routes will be considered during project-level planning for TUS infrastructure. See ROD, pp. 51-52. See also FEIS, Vol. 1, p. 3-128; FEIS, Vol. 2, pp. H-127 to 128. Thus sufficient flexibility is retained to be responsive to any future corridor planning efforts. I find the 2008 Amendment is not in conflict with the Energy Policy Act.

Data Quality Act

Appellant contends a flawed timber demand analysis violates the Data Quality Act requirement that "influential information be 'conducted in accordance with sound and objective scientific practices'" (NOA #0028, p. 37). The Data Quality Act requires government agencies to adopt guidelines "ensuring and maximizing the quality, objectivity, utility and integrity of information (including statistical information) disseminated by the agency" (Treasury and General Government Appropriation Act for Fiscal Year 2001, P.L. 106-554, section 515.b.2.A). The USDA Information Quality guidelines have been implemented by the Forest Service to address requests for correction. The issue raised by the appellant is insufficient to constitute a challenge under the Data Quality Act. The appellant may file a request for correction online at: http://www.fs.fed.us/qoi/.

The appellant's contention that the Data Quality Act was violated is based on various allegations that the timber demand analysis was not conducted with sound, objective scientific practices. This contention is addressed in greater detail elsewhere in this appeal decision.

Wild and Scenic River Act

Appellant contends changed circumstances regarding mineral exploration and development necessitates an up-date to the suitability analysis for the Kegan Lake and Streams System. This appellant also contends the three outstandingly remarkable values identified for the Kegan Lake and Streams System were "mistakenly assumed to exist in areas upstream of Kegan Lake" and that the wild river recommendation for the Kegan System violates the Wild and Scenic River Act because it includes a segment that is not eligible for protection (NOA #0021, pp. 5-10). Another appellant contends the Forest Service violated the Wild and Scenic Rivers Act and NEPA by failing to consider additional recommendations for designations of wild, scenic, and recreational rivers; and

failing to provide a detailed analysis of the environmental consequences to eligible rivers not recommended as suitable (NOA #0027, pp. 14-15).

The Regional Forester is very clear in stating the purpose of the amendment is "to respond to the Ninth Circuit Court's decision in *Natural Resources Defense Council vs. U.S. Forest Service* (421 F.3d 797, August 5, 2005)" and "to consider adjustments to the Plan based on information generated during the recent 5-Year Review of the Forest Plan" (FEIS Vol. 1, p. 1-2). See also ROD, p. 2. The Regional Forester also explains that he reviewed the more than 30 wild and scenic river recommendations from the 1997 revised Forest Plan, and the 1998 Forest Plan amendment rescinding the recommended designation of the Niblack Lakes and Streams system, and concluded there was no need to change those recommendations. See ROD, pp. 7-8. Appendix E of the 1997 FEIS contains more than 500 pages documenting consideration of appropriate suitability factors and disclosing potential environmental consequences to resource values. The planning regulations at 36 CFR 219.12(b) give the Forest Supervisor authority to determine the issues and concerns to be addressed in the planning process. I find changes to the recommendations for wild and scenic river designation were appropriately outside the scope of this amendment and there is no violation of the Wild and Scenic Rivers Act or NEPA.

Travel Management Regulations – 36 CFR 212

Appellant contends the Forest Service has failed to comply with transportation management regulations at 36 CFR 212 by approving the plan amendment without benefit of a Roads Analysis for the Tongass (NOA #0029, pp. 134-135). As cited by the appellant, 36 CFR 212.5(b)(1) does indeed require the responsible official to "identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands." The responsible official must accomplish this by incorporating a science-based roads analysis at the appropriate scale. It is this analysis the appellant contends was not available to inform the plan amendment.

In fact, the Tongass completed the requirement cited by the appellant with the preparation of a Forest-level roads analysis in January 2003. See AR, Doc. #0370. Appropriate for a Forest-level analysis, and consistent with agency direction in FSM 7712, this analysis focused on higher-standard roads, referred to as Maintenance Levels (ML) 3, 4, and 5. See FEIS, Vol. 1, p. 3-312. See also AR, Doc. #0370, p. 7. Roads analysis below the Forest scale is not automatically required and is done at the discretion of the responsible official. See FSM 7712.13(c). As explained in the FEIS (Vol. 1, p. 3-313), roads analysis that addresses ML 1 and 2 roads, and unauthorized roads, is being completed by the Ranger Districts. I find the Tongass National Forest has complied with regulatory and agency directive requirements for the completion of a roads analysis.

Roadless Area Conservation Rule

Appellants contend the temporary exemption from application of the Roadless Area Conservation Rule to the Tongass was illegal and no longer applies (NOA #0025, pp. 2-12; #0028, pp. 76-77).

The FEIS (Vol. 1, pp. 3-444 to 445) includes a history of the Roadless Area Conservation Rule (RACR), including the adoption of a final rule in December 2003 that amended the RACR to temporarily exempt the Tongass National Forest from the rule's prohibitions against timber harvest, road construction, and road reconstruction in inventoried roadless areas. The revision of the RACR in May 2005 to institute a state petitioning process for establishment of or adjustment to management requirements for National Forest System inventoried roadless areas effectively

retained the management as established by the Tongass Forest Plan, unless the Alaska Governor filed a petition by the deadline set in the rule. No petition was filed; however, in October 2006 the State Petitions Rule was overturned in a ruling by the U.S. District Court, Northern District of California, and the RACR, including the Tongass amendment, was reinstated.

This regulatory and judicial history makes it clear the exemption of the Tongass from the RACR prohibitions is currently in effect by federal court ruling. I find no basis for appellants' allegations that the exemption is in someway illegal or inapplicable to this Plan amendment.

Environmental Justice

Appellant contends the FEIS, ROD, and amended plan do not adequately identify social justice issues pertaining to Alaska natives, particularly issues pertaining to access to the Tongass NF (NOA #0020, pp. 1-3). Another Appellant contends the Plan and supporting documents "failed to adequately describe and accurately describe the economic condition of the region for planning purposes" and further contends the Plan results in disproportionately negative impacts on communities that are primarily rural and Native in population (NOA #0024, pp. 5-6).

Executive Order 12898 requires that agencies shall 1) analyze the effects of proposed Federal actions on minority and low-income populations, (2) identify mitigation measures that reduce significant and adverse environmental effects, (3) provide opportunities for community input in the NEPA process and (4) ensure that the agency has appropriately analyzed environmental effects. Based on the analysis in the FEIS, the Regional Forester concludes the amended Plan has a very low risk of disproportionate effects on minority or low-income populations. See ROD, p. 62. The effects of the proposed action and alternatives to the economic and social environment of Southeast Alaska are discussed. See FEIS Vol. 1, pp. 3-489 to 560. The impacts on specific communities, on minority and low income populations, and on subsistence use are addressed. See FEIS Vol. 1, pp. 3-562 to 712; FEIS Vol. 2, Appendix H, p. H-57. Environmental justice issues, including any disproportionately high and adverse human health or environmental effects on minority and low income populations are discussed. See FEIS Vol. 1, pp. 3-712 to 714. Effects on employment in logging, the wood products industry, and recreation and tourism industries are addressed. See FEIS Vol. 1, p. 3-714. Effects of the alternatives on transportation and utilities are displayed. See FEIS Vol. 1, pp. 3-309 to 317; FEIS Vol. 2, Appendix H, pp. H-83, and 127 to 128. Appellants allege the Forest used inaccurate data regarding unemployment rates; however, the analysis was based on the most recent data available from the US Census Bureau, US Department of Commerce, Bureau of Economic Analysis, Alaska Department of Labor, Alaska Department of Community Economic Development, and Alaska Department of Fish and Game, among others. The requirements of Executive Order 12898 are met in the FEIS.

Minerals Planning Handbook

Appellant contends the agency failed to adequately analyze the expected effects of mineral development of forest resources as required by the "Minerals Planning Handbook, § 1.23f(1)" (NOA #0027, pp. 17-18).

I am unable to find the handbook and section referenced by the appellant in any of the laws, regulations, or policy directives that govern management of minerals resources by the Forest Service. Therefore, I am basing my review on the Minerals and Geology Handbook (FSH 2089.15). This handbook outlines the responsibility of authorized officers (36 CFR 228.3(e)) to "[a]dminister the Forest Service mining regulations in a fair, reasonable, and consistent manner and not as a

means of inhibiting or interfering with legitimate, well-planned mineral operations. Ensure that adverse environmental impacts of surface resources are minimized or prevented, mitigated, and repaired as a result of lawful prospecting, exploration, development, and production, as well as activities reasonably incident to such uses (FSM 2871.02)." (FSH 2809.15, 10.41) Further, FSH 2809.15, 12.3 directs the "[f]inal development of a typical underground mine occurs after the operating plan for full development of mine workings and mill improvements has been fully analyzed in accordance with the National Environmental Policy Act (NEPA), other Federal laws (for example, Endangered Species Act and Clean Water Act) have been complied with, and the plan has been approved in a decision document."

Regulations at 36 CFR 228 ensure surface resource protection, while encouraging the orderly development of mineral resources on National Forest System NFS lands. See FEIS Vol. 1, p. 3-353. As discussed elsewhere in this document (National Forest Management Act, Land Use Allocation) the amended Tongass Forest Plan establishes goals and objectives, and standards and guidelines that provide broad, programmatic direction necessary to manage the minerals and geology resources and uses of the Tongass National Forest in a coordinated and integrated manner. The Forest discusses the effects of the proposed action and alternatives on the minerals program. See FEIS Vol. 1, pp. 3-353 to 364. The general impacts of mining activities on air quality (FEIS Vol. 1, p. 3-14 to 16), karst and caves (FEIS Vol. 1, p. 3-30), soils (FEIS Vol. 1, p. 3-39), wetlands (FEIS Vol. 1, p. 3-60), plants (FEIS Vol. 1, p. 3-116), biodiversity (FEIS Vol. 1, p. 3-198, 208), timber (FEIS Vol. 1, p. 3-338), wildlife (FEIS Vol. 1, p. 3-281, 292), recreation and tourism (FEIS Vol. 1, p. 3-400), heritage resources and sacred sites (FEIS Vol. 1, p. 3-441), and the economic and social environment (FEIS Vol. 1, p. 3-493, 520 to 521, 541 to 542, 559 to 560) are discussed. Any future mining activities, such as approval of a mining plan of operation, would require site-specific analysis and disclosure of impacts to surface resources, such as wildlife, water quality, and cultural resources. See FEIS Vol. 1, p. 3-364; FEIS Vol. 2, Appendix H, p. H-85.

I find the record supports the Forest followed direction as outlined in the Minerals and Geology Handbook, consistent with the decision being made.

Issues of Fact

- *Timber demand analysis*

Appellant contends the methodology used to estimate annual market demand used erroneous assumptions pertaining to installed capacity, industry rate of capacity utilization, the share of industry raw material provided by the Tongass National Forest, and the estimate of useable wood in an average Tongass NF timber sale (NOA #0018, pp.8-10).

I disagree with the appellant. The appellant contests the use of the "Morse methodology" (See AR, Doc. #1076) to make estimates of annual demand for Tongass National Forest timber. The Forest summarizes the assumptions and other background information on the Morse methodology, pointing out that the methodology underwent a "rigorous technical and public review before being implemented." See FEIS Vol. 2, Appendix G, pp. G-1 to 2. The Morse methodology is used to establish a system that seeks to build and maintain sufficient volume of timber under contract and is a key input in the development of the annual timber sale program. See FSH 2409.18, R-10 supplement. The Forest further explains that the Morse methodology is used by the agency to comply with the "annual demand" component of the Tongass Timber Reform Act. See FEIS Vol. 2, Appendix G, p. G-7. The derived demand projections in Brackley et al. (2006) are one component in

the Morse analysis. The FEIS Vol. 2, Appendix G (pp. G-10 to 12) provides further detail on this analysis method. The Regional Forester explains the rationale behind use of the Morse methodology in meeting estimated annual market demand for timber as required by the TTRA. See ROD, pp. 29-30.

I find the method used by the Forest Service to estimate annual market demand is a reasonable, scientifically based approach to maintaining or increasing the volume under contract as dictated by industry needs and behavior.

- *Timber economics*

Appellant contends the selection of Alternative 6 was based on a false assumption that timber is a primary driver within the regional economy and that this assumption is refuted by the agency's own research (NOA #0027, p.4).

I disagree with the appellant. While the FEIS does not reference Crone (2005), the economic analysis in the FEIS clearly shows that forestry related jobs contribute less to the overall economy of southeast Alaska when compared to other natural resource based economic activity. See FEIS Vol. 1, pp. 3-494 to 499. The Forest does not assume that the forest products industry is a primary driver in the regional economy. Rather, Section 101 of the Tongass Timber Reform Act (TTRA) imposes a unique planning requirement that the agency evaluate and seek to meet market demand for forest products in Southeast Alaska. The National Forest Management Act (NFMA) requires the agency to conduct analyses and make decisions on the conduct of timber management on national forests. Timber management was identified as a key issue in the 1997 Forest Plan and in subsequent updates; hence the robust discussion of timber values and related issues in the FEIS and the Record of Decision. The Regional Forester speaks directly to the balance between competing natural resources and socioeconomic considerations. See ROD, pp. 47-48. I find the Forest disclosed the assumptions used, and had sound basis for those assumptions.

- *Conveyance under ANCSA*

Appellant contends a low projection of acres remaining to be conveyed to Sealaska under ANCSA is used in the FEIS and Appendix C (NOA # 0022, p. 3). the FEIS acknowledged that the actual final acreage to be conveyed to Sealaska may be unknown at this time. See FEIS Vol. 2, Appendix C, p. C-10. See also FEIS Vol. 2, Appendix H, p. H-79. However, the Forest Service relied on the best information available from the Bureau of Land Management (BLM), which is responsible for processing ANCSA conveyances. See 43 CFR Subpart 2650. Based on information verified with the BLM, the FEIS indicated that approximately 64,000 acres of ANCSA entitlement remains to be conveyed to Sealaska. See FEIS Vol. 2, Appendix C, p. C-10. Until the BLM determines Sealaska's final entitlement pursuant to Section 14(h) of ANCSA, the exact number of acres to be conveyed is unknown. It is important to recognize that nothing in the Tongass amended Plan or the ROD can increase or diminish Sealaska's entitlement. The Alaska Region will continue to work with Sealaska and confer with the BLM regarding the accuracy of the number of acres remaining to be conveyed to Sealaska.

- *Potential effects of proposed legislation H.R. 3560*

Appellant contends the FEIS includes erroneous assertions regarding the effects of H.R. 3560, overstating potential negative effects and discounting potential benefits (NOA #0022, pp. 3-5). I note the proposed "Southeast Alaska Native Land Entitlement Finalization Act" is a bill that has been introduced in the Congress, but has not passed in either the Senate or the House. The FEIS

identified the potential implications of this proposed legislation, which is still subject to enactment by Congress. See FEIS Vol. 2, Appendix C, pp. C-2 to 3. Until such time, the specific impacts resulting from what may be enacted are unknown and I find the FEIS addressed potential effects based on the information known at the time.

- *Land ownership acres*

Appellant contends the FEIS erroneously identifies the State of Alaska as the largest non-federal landowner in Southeast Alaska, even though Sealaska owns more acres than the State (NOA #0022, p. 8). The land ownership summary presented in the FEIS (Vol. 1, pp. 3-299 to 300) clearly explains the acreage total given for the State of Alaska does not include lakes surrounded by National Forest System land. Such lakes are in state ownership.

- *Sealaska's land exchange proposal*

Appellant contends the FEIS makes incorrect assertions regarding Sealaska's comprehensive land exchange proposal, exaggerating potential negative effects and not fully recognizing potential benefits (NOA #0022, pp. 6-7). I find in my review of the appeal record that these concerns were submitted as comments on the DEIS and adequately responded to in the FEIS. See FEIS Vol. 2, Appendix H, pp. H-79 to 82. Appendix C was based on the best information available with reasonable assumptions made of future impacts on the economy and land uses of various land adjustment options. As specific land adjustment proposals are considered, the specific impacts of the proposals will be evaluated under NEPA and other Forest Service analysis to determine whether the proposals are feasible and in the public interest. Until such time, Appendix C represents the general information currently available to the Forest Service regarding the potential land adjustment options and the possible effects that may result.