
SPECIALIST REPORT

FOR THE ROADLESS AREA CONSERVATION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Analysis Of Effects For Biological Resources On The Tongass National Forest

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Specialist Report

This Specialist Report provides the detailed background and information analysis for the affected environment and environmental consequences of the alternatives analyzed in detail for the Forest Service Roadless Area Conservation Draft Environmental Impact Statement (DEIS), May 2000. It covers the data, analytical methods, resources, and the analysis of effects for biological resources on the Tongass National Forest that is summarized and disclosed in Chapter 3 of the DEIS. This analysis focuses on Tongass Alternatives T1-T4.

Background and Proposal

Inventoried roadless areas comprise over 54 million acres, or 28 percent of National Forest System (NFS) lands. Areas without roads have inherent characteristics and values that are becoming scarce in an increasingly developed landscape. While the NFS inventoried roadless areas represent about two percent of the total landbase of the United States, they provide significant opportunities for dispersed recreation, sources of public drinking water, and large undisturbed landscapes that provide privacy and seclusion. In addition, these areas serve as bulwarks against the spread of invasive species and often provide important habitat for rare plant and animal species, support the diversity of native species, and provide opportunities for monitoring and research.

In order to conserve roadless areas, the United States Department of Agriculture (USDA) Forest Service is proposing to prohibit road construction and reconstruction in inventoried roadless areas within the NFS, unless they are needed for public health and safety, for reserved or outstanding rights, or for other specified reasons. This proposal also includes a set of procedures to further conserve inventoried roadless areas and other unroaded areas at the time of forest or grassland plan revision. In addition, the agency is proposing special consideration for the Tongass National Forest. On the Tongass, there would be no prohibition for road construction or reconstruction. However, as a part of the 5-year Tongass Land and Resource Management Plan (TLMP) review, the forest supervisor will evaluate and determine whether the road construction and reconstruction prohibition should be applied to any or all of the unroaded portions of the Tongass inventoried roadless areas. The procedures that apply to all other national forests and grasslands would also apply to the Tongass.

I. Affected Environment

Ecologically and biologically unique aspects of the Tongass National

The Tongass National Forest, in Southeast Alaska is approximately 17 million acres in size. It exists as a naturally highly fragmented patchwork of temperate rainforest bordered by muskeg, alpine meadow, rock, water and ice distributed across 22,000 islands and a narrow strip of mainland. In the naturally fragmented landscapes of Southeast Alaska, species interaction is often problematic, particularly for species that cannot disperse among islands (USDA 1997a). The insular distribution pattern of over 70 terrestrial mammal species among individual islands is indicative of the dispersal limitations on the Tongass (USDA 1997a). Southeast Alaska most likely supports ecotypes and locally adapted species on individual islands, especially the less mobile

species such as small mammals, amphibians and many invertebrates that have yet to be thoroughly investigated or described (USDA 1997a).”

While the dispersal capabilities and population demographics of small, less mobile species are most likely to be affected, the island biogeography also effects large animals. For example, the Alexander Archipelago Wolf, is not found on three of the larger islands in the Tongass (Admiralty, Baranoff, and Chichagoff Islands). Its absence on the islands is thought to be the result of high brown bear density on those three islands as well as water barriers (USDA, 1999).

Relative to species in the contiguous United States, very little is known about many of the species on the Tongass, including both locally adapted species on individual islands and wide-ranging species such as the marbled murrelet. Although Southeast Alaska is considered the geographic center of murrelets in North America very few nest sites are known in Alaska, and there are insufficient census data to either properly evaluate how many marbled murrelets reside in Southeast Alaska or define changes in population numbers over time (USDA, 1999). Comparatively little information exists even for species where recent attention has been focused, for example the Queen Charlotte goshawk (the U.S. Fish and Wildlife Service accepted a petition to list the Queen Charlotte goshawk as endangered, but following their review, decided listing was not warranted). Approximately 35 active goshawk nests have been found on the Tongass. While good information has been generated from the studies of these nests, the number of nests and birds studied in Alaska is very low in comparison to goshawks studies in other locations in the contiguous United States.

Compared to other National Forest System (NFS) lands, the Tongass has relatively few threatened, endangered, and sensitive (TES) species. The TES species on the Tongass are associated with the marine environment, riparian areas including lakes and streams, old growth forest, and distinct habitats such as wet meadow, beach, beach meadow, and alpine/subalpine areas. The majority of management activities on the Tongass that have been implemented specifically to restore or enhance habitat have targeted lake and stream habitats. Examples include lake fertilization and construction of fishways to make additional habitat available to anadromous salmonids. Unlike many areas in the country where managers are implementing vegetative treatments to create or restore habitat for TES species, for example the red-cockaded woodpecker, vegetative treatment needs are not generally identified in order to create or restore TES species habitats on the Tongass. Instead, the emphasis has been on maintaining existing habitat, and in particular riparian and old growth habitat, in sufficient quality, quantity and distribution to meet applicable laws and agency policy.

The Tongass is also unique because the majority of subsistence and game species are integrally linked to the habitat qualities provided by unroaded areas. Example species include the Sitka black-tailed deer, marten, wolf, brown bear, and salmon species. The dependence of terrestrial game and subsistence species on high quality old-growth and riparian habitats found in roadless areas contrasts with many game species in other ecosystems, for example upland game birds and white-tailed deer that depend heavily upon early and midseral successional habitats and respond well to human caused disturbances of the landscape.

The Tongass, unlike much of the contiguous United States, does not have a long history of intense multiple use management. While mining, and hydropower have occurred and

still do exist on the Tongass, the effects of these activities are not comparable to the tremendous landscape scale changes that have occurred throughout the rest of the United States. Other activities occurring in the contiguous United States such as grazing have had not occurred at all on the Tongass. Management effects to species and their habitat on the Tongass are tied predominantly to roads and timber harvest that has occurred within the past few decades.

Ecological and biological conditions – implications for the importance of roadless areas.

Preserving roadless areas is recognized as often playing a key role in maintaining a high degree of ecological integrity (ecological integrity is considered the degree to which ecological factors and their interactions are reasonably complete and functioning for continued resilience, productivity, and renewal). Roadless areas help provide adequate quantity and quality of habitat, connectivity between habitats (where it naturally exists), and greater likelihood that populations will not be isolated from one another. Conditions on the Tongass are naturally such that the existence/persistence of metapopulations for some species is unlikely. Thus, loss of unroaded areas in landscapes such as the Tongass may greatly increase the likelihood that species occur in isolated populations rather than metapopulations where individuals move freely among populations. Under these conditions the likelihood of local extinctions may be increased (Wilcove et al. 1986). Clearly, the risk of range-wide extinctions may increase with higher risk of local extirpations, particularly if there are only a few local populations or movement of individuals among populations cannot occur or is limited.

Because relatively little is known about the current status, needs and response to management activities for some species on the Tongass, conservative management approaches that emphasize retention of roadless areas may provide a necessary “buffer” to ensure higher likelihoods of maintaining biodiversity and species viability.

Ecological and biological basis for vegetative treatments in roadless areas.

In forests within the contiguous United States, there has been considerable attention paid to forest health risks related to catastrophic fire, insect infestations, and disease. Unlike most of the Forests in the contiguous United States where fire is the predominant natural disturbance element that changes forested ecosystems, fires are rarely kindled in the cool rainforest of Southeast Alaska. Instead, wind is the principle natural disturbance element in the Tongass. Thus, there is no need for constructing or reconstructing roads into unroaded areas to address catastrophic fire risk.

With respect to insect infestations and disease, the Tongass Land Management Plan Revision Final Environmental Impact Statement (FEIS) indicates that in general, alternatives that favor low amounts of timber harvest will tend to perpetuate higher disease levels in old-growth forests and that ecological processes and wildlife habitat will be maximized (USDA 1997a). The FEIS recognizes that excessive levels of diseases such as heart rot and dwarf mistletoe, can have important ecological consequences. However, the effects of insect and disease are predominantly a concern with respect to loss of timber value. Ecological or biological concerns regarding insect and disease have not risen to a level on the Tongass where roading and vegetative treatments have been prescribed in unroaded areas in order to maintain or restore properly functioning ecological condition of the landscape.

The abundance (scarcity) of early successional forest, particularly in the southern United States has been identified as a concern for some early successional species. In these areas of the country, the need to build or reconstruct roads and vegetatively treat stands within unroaded areas to create or maintain early forest successional conditions is an issue. On the Tongass, however, habitat issues for game, non-game, and subsistence species are related almost exclusively to the abundance and quality of old growth and riparian habitat commonly found in roadless areas. An ecological need to enter unroaded areas of the Tongass to maintain or change the composition of seral stages present within those areas has not been identified on the Tongass.

Abundance and distribution of roadless areas on the Tongass

Conservation of riparian and old growth habitat and the effects of roading and timber harvest on both game and non-game species have been dominant issues on the Tongass. Thus, consideration of the amount and distribution of roadless areas figured prominently in the FEIS analysis and the 1999 Record of Decision (ROD) for the Tongass Land and Resource Management Plan (TLMP) (USDA, 1997b). An old growth reserve strategy was incorporated in some of the TLMP FEIS alternatives, including the selected alternative (alternative 11) in the Regional Forester's 1997 Record of Decision. Also, viability panel assessment results were considered in the development of alternative 11 (alternative 11 was developed after completion of the viability panel assessments for alternatives 1-9). For example, all islands less than 1,000 acres were removed from the timber base and given complete protection under alternative 11 to reduce viability risk to small endemic mammals. In 1999, Undersecretary of Agriculture Jim Lyons issued a TLMP ROD in response to several appeals that included issues related to roadless qualities and species that benefit from roadless areas. The 1999 ROD administratively protected additional lands from road building and extended timber harvest rotation in some areas, thus slowing the rate of harvest in the old growth that remains in those development prescriptions.

A comparison of inventoried roadless area in the Tongass National Forest to other Forest Service regions in some respects illustrates the prominent role that roadless areas have played in land management planning on the Tongass (the Tongass, because of its large size can be compared to other regions). The Tongass has more total estimated inventoried roadless area (areas 1a, 1b, and 1c) than any other region except Region 4 (USDA, 2000). In a comparison of estimated inventoried roadless area acres (areas 1a, 1b, and 1c) to gross acres, the Tongass has a higher percentage of roadless area than other Forest Service regions (USDA, 2000). Additionally, in a relative comparison of estimated inventoried roadless area where construction and reconstruction is not allowed (1a and 1b) to estimated inventoried roadless area (1a, 1b, and 1c), the Tongass has a higher estimated percentage of inventoried roadless area where road construction and reconstruction are not allowed than any other region (USDA, 2000).

While these comparisons illustrate the attention that has been placed on conserving roadless areas, a look at the distribution of roadless areas not just on a Forest-wide basis, but in a disaggregated fashion lends insight into some of the ongoing discussion, debate, and controversy regarding roadless area management on the Forest. The relevance of the disaggregated analysis and the controversy over roadless area management on the Tongass is tied to the heightened sensitivity to further fragmentation, as previously described. Within the Tongass, there are several areas (e.g

central and north Prince of Wales Island and northeast Chichagof Island) that have been intensively managed for timber production. Timber harvest on the Tongass has occurred almost exclusively using even-aged (clear-cut) harvest methods that includes extensive road building. The result has been a marked decline in the amount of productive old-growth in these areas, concern over habitat loss, and increased mortality rates to populations of some species due to increased human access. Species for which concerns regarding habitat loss or increased mortality from human access have arisen include brown bear, wolf, marten, sitka black-tailed deer, goshawk, northern flying squirrel, and several fish species.

II. Effects of the Tongass Alternatives

Baseline condition and assumptions used to evaluate Tongass roadless alternatives.

The ecological effects (benefits) of a roadless area decision on the Tongass National Forest, may best be illustrated by comparing expected outcomes of the Roadless DEIS Tongass alternatives to the likelihood predictions regarding viability that were completed for each TLMP FEIS alternative. As part of the TLMP FEIS, panel assessments were completed for both terrestrial (wolf, marten, goshawk, brown bear, marbled murrelet, and small endemic and widely distributed mammals) and aquatic (Chinook, sockeye, pink, chum, coho, stellhead, cutthroat, and dolly varden) species. For all of these species, except some of the endemic and widely distributed mammals, consideration of the quality, quantity, and distribution of roadless areas (and/or habitat conditions commonly found in roadless areas) was key in predicting the likely outcomes of various alternatives. Considerations for example included “the significant goshawk use of productive old growth forest and the little use or avoidance (relative to availability) of all other available habitat types,” “the strong association of marten with the high volume old growth forest strata, combined with past timber harvest that was concentrated in these highly productive stands,” and the effects of roads and human access on brown bears as well as resident and anadromous fish species (USDA 1997a).

The panels, composed of scientific experts on the species, were assembled to predict likely outcomes for nine TLMP FEIS alternatives. A total of five outcomes were identified for panel members to consider as likely outcomes. The outcomes each described a different scenario regarding habitat quality, distribution and abundance, and the distribution of breeding populations. They range from conditions where habitat is of sufficient quality, distribution and abundance to allow the species to maintain well distributed, breeding populations across the Tongass (outcome I) to habitat conditions resulting in species extirpation from federal land (outcome V). Panel results are represented by the distribution of 100 total points among the five outcomes. It was possible for panelists to assign all 100 points to one outcome, but more commonly, points were distributed across several outcomes. The distribution of the points provides a measure of certainty of panel predictions for any given outcome.

The results of the panel assessments differ by species and alternative. However, based on the panel results, and discussion in the TLMP FEIS and administrative record, the following broad generalizations can be made:

- Most of the TLMP FEIS action alternatives generally resulted in higher likelihoods for outcomes I and II (habitat to allow species to be “well distributed,” “adequately distributed,” or “distributed” across the Tongass).

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- Among alternatives, as total miles of roads and acres of potential timber harvests increased, fewer likelihood points were assigned to outcomes I and II and more likelihood points were assigned to outcome III and in some cases outcomes IV and V.
 - In comparisons among alternatives, the TLMP FEIS and 1997 ROD, generally ranked alternative 11 (the selected alternative in the 1997 ROD) as one of the alternatives that posed the least risk to the species considered in the panel assessments.
 - The likelihood predictions of outcome I, particularly for some species, was noticeably higher for alternative 1 than all other alternatives, including alternative 11 (Alternative 1 emphasized high quality fish and wildlife habitats, unroaded areas, a wide range of recreation opportunities, and limited timber management to small-scale timber production using uneven-aged treatments to maintain forest structure, function, and dynamics similar to existing natural conditions).
 - Disaggregated assessments of intensively managed areas and mostly natural areas that were done for some species highlight the ecological and biological concerns in intensively managed areas. For example, a panel assessment for brown bear on Admiralty Island, a Designated National Monument, resulted in 97 or more of the total 100 points distributed within outcomes I and II for all TLMP FEIS alternatives 1 through 9, indicating a very low risk to brown bears. The panel assessment for brown bear on Baranoff and Chichigoff Islands (that included intensively managed lands), however, indicated a much higher risk under most of the alternatives, including alternative 9 where only 19 of the 100 total points were distributed within outcomes I and II. Total points distributed among outcomes I and II for brown bears on Baranoff and Chichigoff Islands ranged from 19 to 65 among alternatives 2-9. For alternative 1, 82 of the total 100 points were distributed within outcomes I and II.

The 1999 ROD built upon TLMP FEIS alternative 11 by incorporating aspects of the other alternatives in order to improve subsistence opportunities, reduce risk to certain wildlife species, and reduce risk to old growth ecosystem viability. The decision included extension of timber harvest rotation from 100 to 200 years on many intensively managed lands, and changed land use prescriptions from Development to Mostly Natural land use prescriptions in several special interest areas, thus retaining larger “blocks” of unfragmented, unroaded habitat. While the 1999 ROD does not provide the same emphasis or level of protection to species and their habitat as TLMP FEIS alternative 1, the 1999 decision is favorably comparable, and perhaps lower risk than the other TLMP FEIS alternatives that were ranked among the alternatives as having lower species risk ratings (e.g. alts 3, 4, and 5). Thus, it is reasonable to assume current risk level under the current TLMP ROD is similar to that predicted for TLMP FEIS alternatives 3, 4, and 5. A roadless area decision could further shift risk toward the outcomes predicted for TLMP FEIS alternative 1. The magnitude of the shift that may be predicted differs among the various roadless area alternatives.

Effects by Alternative

Prohibition alternatives 2 through 4, if applied to the Tongass, provide a context for understanding the effects of Tongass alternatives T1 through T4. A discussion of effects for prohibition Alternatives 2 through 4 is thus provided below, immediately preceding the effects discussion for Alternatives T1 through T4.

For the Tongass National Forest, no relevant differences have been identified among prohibition Alternatives 2 through 4. Nearly identical outcomes are expected among these prohibition alternatives because:

- Regional data indicate a 95% decrease in timber volume from the inventoried roadless areas under a roads prohibition alone. Thus, the effects of a prohibition on road construction are not substantially different from the effects of a combined prohibition on road construction and timber harvest;
- Timber harvest on the Forest is designed and implemented primarily to maximize growth and yield and to provide commodity outputs. Thus, the effects of a prohibition of timber harvest, except where designated for stewardship purposes, is unlikely to be substantially different from a prohibition of all timber harvest, particularly within the current planning cycle; and
- Initial estimates indicate that approximately 33% of the timber volume is scheduled to come from outside inventoried roadless areas. Under current management standards and guidelines, agency policy, and applicable law, it is unlikely that the Forest could substantially increase the amount of timber offered outside inventoried roadless areas above that which is currently predicted.

Alternatives 2 through 4, if applied to the Tongass, would eliminate an estimated 95% of the timber harvest scheduled to occur within inventoried roadless areas. Thus within inventoried roadless areas, very little additional fragmentation would occur. Since the scheduled timber offer in inventoried roadless area represents a significant portion of the scheduled timber offer for the Tongass (estimated at greater than 2/3 of the total harvest), alternatives that include prohibitions may noticeably decrease the likelihood of undesired outcomes associated with gaps in species distribution as compared to the no action alternative or alternatives that only include procedures. Prohibition alternatives may be very low risk to old growth ecosystem integrity, species viability, and diversity and approach risk levels that are somewhat comparable to risk levels predicted for TLMP FEIS alternative 1. The significance of these risk reductions under prohibitions may be greatest for species such as the northern flying squirrel that were rated with the highest viability concern and for species with greater scientific uncertainty with regard to abundance, habitat requirements, response to disturbance, etc.

Alternative T1: No Action; No prohibitions or procedures applied to the Tongass National Forest.

Under Alternative T1 land management would continue as outlined in the 1999 ROD for the TLMP. Under the current TLMP over 500 mmbf of timber is scheduled for harvest in inventoried roadless area in the next five years, more than twice that scheduled for the entire National Forest System. Based on the amount of harvest currently projected under the no action alternative and the intense even-aged techniques that are used to

harvest timber on the Tongass, forest fragmentation may be increased greatly in the areas where harvest is scheduled. Thus, there would be a higher likelihood for undesired outcomes relative to species viability as compared to Roadless Draft Environmental Impact Statement (DEIS) alternatives that include prohibitions and/or procedures. For instance gaps in historic species distribution on the Forest would be more likely to occur under Alternative T1 than the Roadless DEIS action alternatives. The likelihood of these outcomes under Alternative T1 may be similar to the outcomes displayed in the panel assessments for TLMP FEIS alternatives 3, 4 and 5. Panel results for TLMP FEIS alternatives 3, 4 and 5 predicted moderate to high likelihoods for outcomes where habitat is sufficient to allow species to be well distributed and lower likelihoods of outcomes where significant and permanent gaps in historic distribution occur, or where habitat only allows species to exist in refugia, with strong limitations on interactions among local populations. Thus, although higher risk in comparison to other Roadless DEIS alternatives, the Roadless DEIS no action alternative is not a high risk alternative for species viability. (Note: there are species such as the northern flying squirrel, that even under FEIS alternative 1 that emphasized fish and wildlife values did not predict high or moderate likelihoods that well distributed populations would persist across the Tongass).

Alternative T2: No prohibitions; Determine whether road construction should be prohibited in unroaded portions of inventoried roadless areas as part of the 5 year Plan review; Implement forest planning process at next Plan revision; Project-by project analysis in the interim.

While this alternative does not apply any prohibitions to the Tongass National Forest, it does require evaluation of inventoried roadless areas at the time of the 5 year Plan review to determine whether or not road construction and reconstruction should be prohibited in the unroaded portions of inventoried roadless areas at that time. Both project-by-project and forest planning procedures are intended to place more emphasis on management activities that identify, consider, enhance, and conserve ecosystem health, visual quality, and other roadless characteristics. There is little opportunity to design and implement timber harvest and roading on the Tongass in a way that would enhance roadless characteristics. Therefore, it is possible that applying the procedures could have a similar result as applying the prohibitions, although they would be applied to a larger land base.

The procedures are designed to give local decision makers discretion in design and implementation and do not prohibit any activities. Therefore, it may be possible to design project level treatments in a manner that does not pose an unacceptable risk to roadless characteristics, particularly when considered in the context of the TLMP FEIS and 1999 ROD that focused heavily on conservation and preservation of roadless areas and roadless qualities. Within this legal and policy context the outcome of the procedures could be much less dramatic than applying prohibitions.

A long-term shift toward vegetative treatments more consistent with broader stewardship and forest health concepts is possible, particularly with respect to second growth stands. However, the majority of these treatment opportunities will not be available for several planning cycles and will occur mainly within roaded portions of the Forest. Thus, most of the vegetative treatment needs that are likely to be identified into the next planning cycle are likely to be growth and yield treatments within unroaded portions of the forest.

Despite the difficulty in predicting the outcome of the procedures, applied either on a project by project basis or through a Forest-wide planning process, it is logical to assume that road building and timber harvest would occur in the areas where the procedures are applied, although at a reduced level than anticipated under the current TLMP ROD. The scope of the effects, both beneficial and detrimental, will likely be commensurate with the amount of roading that occurs and the activities such as timber harvest that occur as a result of the roads.

Alternative T3: No prohibitions; Determine whether road construction should be prohibited in unroaded portions of inventoried roadless areas as part of 5 year Plan review; Implement Forest planning process at next Plan revision.

An important difference between procedures applied on a project by project basis and a discrete planning process is the timing when the procedures would be applied. The planning process for the current TLMP took over 10 years to complete. Thus, it will likely take several years or more to complete the forest-wide planning process for the Tongass once it is initiated. Procedures applied on a transitional, or project-by-project basis could occur immediately upon completion of the final roadless rule and FEIS decision. A substantial amount of intense management activity is projected to occur within roadless areas of the Tongass within the next five years. In the absence of transitional procedures, beneficial effects may be foregone for some resources, for example ecological resources. Detrimental effects that might occur under transitions, for example decreased timber volume offered, fewer jobs in the wood products industry, and reduced payments to the State of Alaska would be less likely to occur in that 5 year period.

Another difference between the procedures is the scale that the analyses would occur. The evaluation of whether or not to prohibit road construction and reconstruction in unroaded portions of inventoried roadless areas would occur at a broad Forest-wide scale where conservation approaches to roadless areas and the qualities for which they are valued could be incorporated into a cohesive strategy. Achievement of this goal on a project-by-project basis may be more difficult. For example, opportunities to reduce the likelihood for limitations on interaction among local populations of species may not be easily identified at the project level unless site-specific analyses are tiered to conservation assessments, goals, and objectives for individual species. Where those assessments, goals and strategies do not exist, or where little is known about the species as is the case with many Tongass species, the likelihood of taking advantage of opportunities to reduce risk to species is more unlikely.

Other than these two differences, the ability to predict different outcomes between the project-by-project transition and the forest-wide evaluation is difficult. In both Alternatives T2 and T3 procedures would be implemented at the time of the next plan revision. While the Forest would have some opportunity to shift timber harvest away from roadless areas at that time, opportunities to make such a shift may be very difficult.

Under this exemption alternative, intensive timber management and roading activity, generally considered to be inconsistent with maintaining roadless area quality but consistent with Section 181 of the Tongass Timber Reform Act (TTRA), would continue within those inventoried roadless areas where roading and timber harvest is permitted until the 5 year evaluation and Plan revision process is complete. At such time it is

reasonable to assume that as more acres are considered for roadless area protection, few acres would be roaded and harvested.

Alternative T4: Apply prohibitions in inventoried roadless areas of Old Growth, Semi-remote Recreation, Remote Recreation, and LUD II land use designations only.

Under this alternative, prohibitions would be applied to inventoried roadless areas within Old Growth, Semi-remote Recreation, Remote Recreation, and LUD II land use designations. Collectively, these four designations encompass approximately 7,000 acres or 80% of the land within inventoried roadless areas

These four designations all emphasize maintenance of mostly natural settings rather than development. For the Roadless DEIS, they were categorized as inventoried roadless areas where roading is not allowed. However, on the Tongass, like other NFS lands, there are certain situations in which roading is allowed in inventoried roadless areas that have been characterized as not allowing roading. On the Tongass, there are perhaps a greater number of circumstances where allowances are made for roading within these areas than in other NFS lands. For example, the prescriptions for all four of these designations allow roads to be built to access adjacent lands for development purposes, if it is the only feasible option.

The amount of road building currently anticipated to occur under the 1999 ROD in inventoried roadless areas within Old Growth, Semi-remote Recreation, Remote Recreation, and LUD II land use designations can be predicted based on the situations in which road building is permitted, the spatial distribution of the designations on the Forest, and total acres of each land use designation. Based on the considerations outlined below, higher amounts of road building may be anticipated to occur within the Semi-remote Recreation and Old Growth land use designations relative to the Remote Recreation and LUD II designations.

- The prescription for Old Growth land use designation, like the other three prescriptions allows roading to access adjacent land use designations if roading through Old Growth is the only feasible access option. These situations are more likely to occur in association with Old Growth land use designations because of the spatial distribution of Old Growth designations on the Forest. Old Growth designations are often much smaller in size, are more widely distributed, and often occur adjacent to and even as inclusions within moderate and intensive land use designations. In contrast, the other three land use designations tend to occur in larger contiguous blocks that sometimes encompass entire small islands.
- New roads are not explicitly stated as inconsistent with the goals, objectives, and desired condition of the Semi-remote Recreation land use prescription and an exception to allow roading to link existing roads is described within the transportation standards and guidelines for Semi-remote Recreation. In contrast, the desired condition for Remote Recreation is described as being characterized by extensive, unmodified natural environments, a goal to manage the LUD II areas in a roadless state is described, and the standards and guidelines for Old Growth describe roads as generally inconsistent with the objectives of the Old Growth prescription.

Despite the relative abundance of these designations on the Forest (approximately 7 million acres total), the amount of roading that is likely to occur within these four designations under the current TLMP is likely to be a very small percent of the total amount of roading that will occur on the Forest. Where roading does occur within these four designations it is likely to be minimal and to occur near the fringes of these otherwise unroaded areas. As with all projects, such road construction would require environmental analysis and mitigation, consistent with applicable law and agency policy. Most of the roading on the Forest is currently projected to occur in inventoried roadless areas with Moderate and Intensive Development designations that do not prohibit roading and timber harvest.

For purposes of analyzing Alternative T4, the Alaska Region estimated the acres of Development land use designations that could be isolated if roading through inventoried roadless areas within these four prescriptions were prohibited (personal communication with the Alaska Region). The results are displayed below.

Designation	Acres Isolated	Percent of the Timber Base
LUD II	0	0
Old Growth	54,461	6
Semi-remote Recreation	11,528	1
Remote Recreation	540	0
Total	66,529	7

The analysis for Old Growth only considered large and medium sized reserves, since small reserves were not mapped on the 1999 TLMP ROD map. With respect to prohibitions in small reserves, the Region reported “in most projects currently in process, small reserves would preclude access to the suitable land base needed to achieve the ASQ.” The Alaska Region estimated that an additional 4% of suitable land base could be isolated if roading through inventoried roadless area in small old growth reserves was prohibited. Thus, an estimated total of 7-11% of the suitable land base would likely be isolated if the prohibitions were applied to all old growth reserves. The short-term effect of this loss of roading capability is estimated to be a 291 MMBF decrease from the current ten year timber sale plan. Most of this decrease would occur in the first five years (241 MMBF in the first five years as compared to 50 MMBF in the last half of the ten year period).

The projections did not include road miles required to access the acres identified as potentially isolated under this alternative. Based on the discussion of projections with the Region it is clear that the majority of roading needed for access among the four prescriptions analyzed in this alternative would involve Old Growth land use designations. The Region estimated that there are thirteen instances where roading through large or medium reserves might be required to access adjacent development lands and a couple of those instances where the road segments required for access might be extensive.

Old Growth designations were chosen for their high value to old growth dependent and disturbance sensitive species. Thus, roading within reserves would likely affect ecological resources. Beneficial effects to old growth as well as old growth and

disturbance sensitive species could occur from a prohibition of roading in Old Growth designations.

Old Growth prescription was designated in a series of small, medium, and large reserves. Approximately 150 medium and large reserves were designated. Many small reserves are distributed throughout the Forest. Certainty, with respect to the value of these areas was higher for larger and medium reserves than the smaller reserves. The value of the smaller reserves is strongly related to site-specific information that was difficult to obtain at the Forest Plan level. A provision to adjust the location of the reserves was included in the Plan based upon further consideration of the site-specific characteristics of individual small reserves.

The effects to individual reserves, if roading occurs within the reserve would be dependent on the location of the road(s) and extent that effective mitigation measures could be developed and implemented. Even a limited amount of roading in isolated small reserves could compromise their value. Thus, for smaller reserves the ability to adjust Old Growth boundaries to include old-growth of equivalent or higher value would influence whether or not there are effects, and if so, the magnitude of the effects. A road that completely transects a larger unroaded area might also compromise its biological and ecological integrity, although few such instances are expected to occur. Where roading through large and medium sized old growth reserves may be necessary to access Development land use designations, the amount of road needed within the reserve is generally expected to be less than five miles.

Under this alternative, projected effects to the timber base include isolation of over 66,000 acres of suitable timber lands. In general, lands in the suitable timber base are often quality old growth habitat. Retention of these lands in an unroaded, undisturbed condition would benefit ecological integrity by retaining more old growth habitat and reducing fragmentation that would otherwise occur under the current Forest Plan. These effects may be short-term in nature and dependent upon the economics of the timber market in Southeast Alaska. For example, at some time in the future the value of the timber in some of the areas isolated by road access, could be high enough to support other harvest methods.

Based on the estimated frequency where roading needs in Old Growth designations might arise (approximately 10% of the large and medium reserves as well as other small reserves), the ecological benefits of this alternative would not be expected to noticeably lower Forest-wide risks to species from that predicted under the current TLMP. Instead the ecological benefits of this alternative would likely be localized in nature. However, where these benefits occur at the local level, they could be quite meaningful and easily identified.

The beneficial effects to ecological resources as a result of prohibitions within the Semi-remote Recreation, Remote Recreation, and LUD II land use designations are likely to be much less than prohibitions within the Old Growth designations since roading through Old Growth designations under the current Forest Plan to reach Development land use designations is likely to occur much more commonly than in the Semi-remote Recreation, Remote Recreation, and LUD II land use designations.

III. References

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