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Comments: Please see attached file. Please let me know if the file does not come through.

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I lived in Juneau, Alaska until I was a young adult. I have a BA in biology from Gustavus Adolphus College. I am writing because I strongly support the No-Action Alternative for the Draft Environmental Impact Statement on the proposed Alaska Roadless Rule, Alternative #1. I want to keep the Roadless Rule protection for the Tongass because it is important to protect our economy. We need to do our best to stop climate change, which negatively impacts Southeast Alaska.Also, we need to protect wildlife such as glacier bears, Alexander Archipelago wolves and certain birds. Finally, protecting the Tongass is morally the correct course of action, and protecting the Tongass is the most popular option.

We must protect our most important industries in southeast AK. According to the most recent numbers I could find, which are from 2013, Logging employment in Southeast Alaska is 1% and mining is 2%. Seafood employment is 9% and Tourism is 15%. https://www.researchgate.net/figure/Employment-in-Southeast-Alaska-by-industry-for-the-year-2013-Tourism-and-visitor_fig3_304891436 (11/18/19.) Logging hurts both the fishing and tourism industries. The proposal, especially the preferred option #6, does not provide a buffer for salmon streams. Why should we promote logging and hurt an industry that supports 9% of Southeast Alaskans? Also, Tourism will be harmed if there is too much logging. When I worked in the tourism industry, tourists were impressed with the large expanses of virgin forest. Clearcutting is not what tourists pay big money to look at. If the forest is cut down, the tourists and their money, will have few reasons to visit Alaska. Why would we promote logging when it is a direct detriment to the tourism industry?

In the DEIS statement, some parts of studies were left out. On page 3-124 of the draft EIS, it states "Leighty et al. (2006) estimate that between 6.4 and 17.2 million metric tons (0.2 to 0.6 percent) of stored carbon in aboveground carbon pools, net of subsequent regrowth, has been lost on the Tongass since timber harvest began in the early part of the 20th century." This is used to suggest it's not that big of a deal compared to carbon lost from carbon used to produce power in the US. In reality, 6.4 to 17.2 million metric tons of carbon is a lot of carbon. The average American emits 20 tons of carbon dioxide every year. (https://www.sciencedaily.com/releases/2008/04/080428120658.htm 11/22/19.) When you divide 6.4 and 17.2 million metric tons of CO_2 by 20 of CO_2, you get 320,000 to 860,000. The emission released by the logging in the Tongass, therefore, are equivilant to the cabon dioxide released by 320,000 to 860,000 people in a year. According to the 2010 census, Southeast Alaska has 71,616people. Therefore, 6.4 to 17.2 million metric tons of carbon dioxide is a lot. Also, every bit of carbon lost pushes us closer to the climate changing in ways we can not recover from. The DEIS (3-124) even states that, "In 2005, Heath et al. (2011) estimated that the carbon stored in the Tongass makes up about 11 percent of the carbon currently stored in the national forests of the United States." This is yet another way to see that the amount of carbon emissions at stake are quite high.

The missing part of the study from Leighty et al. (2006) states, "If all timber harvesting in the Tongass were

halted from 1995 to 2095, the economic value of the net carbon sequestered during the 100-year hiatus, assuming $20/Mg C, would be $4 to $7 million/y (1995 US dollars). If a prohibition on logging were extended to 2195, the annual economic value of the carbon sequestered would be largely unaffected ($3 to $6 million/y). The potential annual economic value of carbon sequestration with management maximizing carbon storage in the Tongass is comparable to revenue from annual timber sales historically authorized for the forest." https://pubag.nal.usda.gov/catalog/525435 (accessed 11/19/2019) Therefore, what is the point in harvesting in the Tongass? The economic value of carbon sequestration from allowing the forest to remain is just as great as the value from logging. The economic value of the forest further increases when you take into consideration money from the tourism industry, and money from the fishing industry, as previously shown.

The Intergovernmental Panel on Climate Change (IPCC), including 90 climate scientists from 40 countries, warns that humans must limit global warming to 1.5 degrees C by 2040, or we will be stuck with the consequences of climate change (https://www.nrdc.org/onearth/climate-scientists-world-we-have-only-20-years-theres-no-turning-back 11/19/19.) According to the DEIS, if we harvest the Tongass now, we will wait 50-200 years for the lost carbon to be recovered (DEIS 3-125). This is too late. It will not help the planet with our 2040 timeline. One of the best ways to stop climate change is to plant trees. And, according to the Paris Agreement, "forests to be managed as a global "sink" for carbon." (https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf 11/22/19.) However, according to this proposal, we should be cutting them down. This will not benefit our world, or Southeast Alaska. Problems from climate change in Southeast Alaska can include accelerated glacier melting (which has tourism impacts), increase the likelihood that salmon will enter the ocean earlier when there is not enough food[mdash]so their numbers would go down, and leave us vulnerable to invasive species. (http://cespubs.uaf.edu/index.php/download_file/1431/ 11/22/19) On the global scale, climate change will lead to higher temperatures and stronger heat waves, drouts in some places, floods in some places, sea level rise, an increased number of extereme weather events, and massive numbers of extinctions. (https://www.ucsusa.org/climate/impacts 11/22/19.)

The DEIS falsely claims that logging the Tongass could result in lower greenhouse gas emissions than if it is unharvested in part because of carbon sinks created by harvested wood products. The DEIS states, "After a forest is harvested, it will eventually regrow and recover the carbon removed from the ecosystem in the harvest. In some cases, removing carbon from forests for human use can result in lower net contributions of GHGs to the atmosphere than if the forest was not managed (3-125)". This statement, however, highly depends on the type of logging done. Dominick A. DellaSala, Ph.D. points this out. "Without the benefit of a comparable analysis, however, the Forest Service claims that logging old-growth forests could result in either a net loss or gain of carbon depending on logging practices even though clearcut logging (a substantial emissions source) is the method of choice on the Tongass (https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf 11/22/19.) The DEIS continues to try to defend clearcutting practices. "Several authors (DellaSala 2016; Janish and Harmon 2002) suggest that the amount of carbon lost initially due to harvesting might take 50 to 200 years to fully recover in the ecosystem. However, these estimates do not include consideration of harvested wood products and substitution effects, which would effectively reduce the initial impacts more quickly. (3-125)" The DEIS leaves out some important facts. Modern harvested wood products will not last long. They will not last the 50-200 year time that the DEIS says it takes for carbon to recover in the ecosystem. For example, furniture these days is not high quality and tends to fall apart. In 2006, the average life expectancy for a "good-quality sofa," was 7.8 years, down from 12.1 years in 1996 and 14.2 years in 1985. (http://www.startribune.com/sofas-how-old-is-too-old/177662441/ 11/19/2019). Also, the average life of a house is only 40 years (https://www.makaan.com/iq/buy-sell-move-property/what-is-the-average-age-of-a-house 11/19/19.) Some of the wood will only be used for paper and fuel, especially if we have another pulp mill. These short lived carbon products will not offset the carbon dixoxide lost by logging the forest and they do not justify cutting down the forest. The value of the forest also includes the fact that it helps produce oxygen to sustain us and helps maintain biodiversity.

Furthermore, "When a forest is cut down, roughly 66% to 80% of the stored carbon in the forest is released overtime as CO2 (some carbon is stored in wood products) thereby converting forests from a sink to a "source" or "emitter." The minimal storage in wood products is an accounting misstep typical of federal agency carbon pronouncements that over value carbon in wood products. (https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf 11/22/19.) The problem with measuring the value of carbon by looking at harvested wood products is that the soil and other biomass left over from logging is not taken into consideration. Dominick A. DellaSala, Ph.D. continues, "Soon after logging, carbon is emitted to the atmosphere via rapid decomposition of logging slash, fossil-fuel emissions from transport and wood processing, and decay or combustion (within 40-50 years) of forest products in landfills. Planting or growing young trees or storing carbon in wood products does not make up for emissions released from a logged forest. Indeed, after an old forest is clearcut, the young forest remains a net CO2 emitter for 5 to 50 years, depending on site productivity." (https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf 11/22/19.)

Southeast Alaska is home to endemic species and to species important to its economy such as five species of salmon. As previously stated, 9% of the population of Southeast Alaska is based on the seafood industry, and salmon fishing is a large part of that industry. The DEIS (2-21) states, "The future of the fishing industry is more likely to depend upon occurrences outside of the Tongass National Forest such as hatchery production, offshore harvest levels, and changes in ocean conditions." The biggest reason ocean conditions are presently changing is climate change. According to National Geographic, "The oceans of the world are warming up, their average temperatures pushed higher and higher each year by human-caused global warming." (https://www.nationalgeographic.com/environment/oceans/critical-issues-sea-temperature-rise/#close 11/22/19.) National Geographic lists that these changes include warming seas that hurt marine life, warming seas making stronger storms and warming seas driving sea levels higher. Logging, such as the proposed increased logging in the Tongass, contributes directly to climate change. According to Dominick A. DellaSala, Ph.D., "globally, deforestation (8-15%) and forest degradation (6-13%) contribute more greenhouse gas pollution than the world's entire transportation network." (https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf 11/22/19.) Since logging causes climate change and climate change causes changes in ocean conditions, the fishing industry will be hurt by logging the Tongass. Again, why would we want to promote the logging industry at the expense of the fishing industry?

Also in the DEIS, Alternative 3 protects T77 watersheds (ES-7). Alternative 6, the plan that is called preferred (I prefer no action-plan 1) does not protect these T77 watersheds. These T77 watersheds are designated to protect salmonoid fish. Without buffer zones, the salmon will suffer because a healthy forest is vital for a healthy salmon stream. Logging also hurts salmon because climate change increases the likelihood that salmon will enter the ocean earlier when there is not enough food (file:///C:/Users/excar/Downloads/ACC-00114.pdf.)

The Alexander Archipelago wolf, a subspecies of the Northwestern Wolf, is a rare subspecies of wolf that must be protected from logging. This kind of wolf is beloved, like the wolf Romeo from Juneau, and has a positive impact on tourists. 80% of the Alexander Archipelago wolf's habitat comes from the roadless areas of the Tongass National Forest. This wolf subspecies is already in trouble. Its numbers are declining and over half of the old growth forests it once used are now gone (https://www.biologicaldiversity.org/species/mammals/Alexander_Archipelago_wolf/index.html 11/20/19). As an apex predator, the Alexander Archipelago wolf needs large, unbroken areas of land to survive. Even the DEIS (3-10) admits, "Roadless areas may be of greatest value to wide- ranging species that require large, undisturbed areas of land[hellip] Of greatest concern on the Tongass is the Alexander Archipelago wolf, particularly on Prince

of Wales and surrounding islands. Although the alternatives would be similar in terms of overall harvest levels, Alternatives 4, 5, and 6 would result in the largest adverse effects on these species because of greater road lengths, penetration into remote roadless areas, and habitat fragmentation that they would produce relative to Alternatives 1, 2, and 3." In this paragraph, it is clearly stated that logging this area would negatively impact the Alexander Archielago wolf along with the brown bear and the American marten. How can alternative 6 be preferred when it is clearly an alternative that harms the Alexander Archipelago wolf and other important mammals? Alternative 1 will allow us to keep the populations of these animals much healthier. Also, one scientist points out that logging will leave the remaining areas of the Tongass susceptible to falling trees, further disrupting the remaining habitat for the wolves and other wildlife. "Once you have a clear cut, then the remaining trees or the edge of the forest becomes much more susceptible to what we think of as windthrow, or wind disturbance," says Northern Arizona University ecologist Michelle Mack, who studies forests. This exposure also imperils species like moss, which rely on a moist, dark environment to thrive, but are now left to dry out in the wind and sun." (https://www.wired.com/story/tongass-logging/ 11/23/19.) Finally, wolves need access to other wolf populations so they can breed with others and maintain a healthy population. Inbreeding in wolves, like in humans, can have disastrous consequences.

Other animals also need access to their counterparts to avoid inbreeding. Like wolves, bears need large areas of land to survive, and they are healthier if they are on land far from people. Alexander Archipelago bears are listed in the DEIS. One subspecies of bear, the beautiful and very rare Glacier bear, is endemic to this area and is not even addressed in the DEIS. "Glacier bears (Ursus americanus emmonsii) are mostly found in Glacier Bay National Park and Preserve as well as Tongass National Forest in Alaska, with occasional sightings in the capital city of Juneau. Their fur color ranges from silvery blue to grey, and tends to be darker closer to their bodies, terminating in white tips. The coloring is not always evenly distributed. They are among the most rare bears in the world, with little concrete information known about them or their numbers." (https://www.atlasobscura.com/places/glacier-bears-in-glacier-bay-national-park 11/15/19.) This type of bear deserves the same protection that other rare and endangered species are given. The DEIS (3-80) states, "Black bears use small openings and areas such as wetlands, clearcuts, and subalpine meadows for foraging." However, the proposed clearcuts would be large openings, not small openings. Also, clearcutting leaves the land vulnerable to invasive species. Northern Arizona University Ecologist Michelle Mack says, "One nice thing about most Alaskan forests and tundra is they're relatively resistant to invasion," says Mack. Roads and clear-cuts, she says, remove some of that protection. Equipment brought in from afar might carry seeds that can take root and out-compete native species, as well as winged insects that can spread even faster in the stressed-out forest." (https://www.wired.com/story/tongass-logging/ 11/23/19) The glacier bears and the Alexander Archipelago bears are eating native species, and should be allowed to continue to do so. As previously mentioned, logging is detrimental to salmon streams. Bears rely heavily on a healthy population. Hurting the salmon streams will hurt the bear population as well.

Many bird species rely on the Tongass National Forest and must be given unlogged land to survive in. The Queen Charlotte Goshawk is one of these birds which needs the protection of the unlogged areas of the Tongass National Forest. This goshawk subspecies lives only in the old growth forest in the Tongass National Forest and in the Great Bear Rainforest. According to the DEIS, "High-volume POG represents optimal nesting and foraging habitat for goshawks due to the presence of large trees and snags. Existing amounts of this forest type on the Tongass are discussed in the Biological Diversity section. Approximately 84 percent of the original high-volume POG existing in 1954 remains on the Tongass (DEIS 3-77)." It sounds like a lot of this high volume productive old growth is left, but clearly not enough remains for the Queen Charlotte Goshawk. In "1995, the [Queen Charlotte Goshawk] was showing classic extinction dynamics. Its very high mortality rates correlated with heavily logged forests." (https://www.biologicaldiversity.org/species/birds/Queen_Charlotte_goshawk/ 11/23/19.) Also according

to this website, the Queen Charolette Goshawk population is protected as a threatened subspecies in Canada, but not in the United States because at the time, the goshawks were protected by the existing Tongass plan. What will happen to this bird if more clearcutting of old growth forests is allowed while it is already going extinct? This is one more reason I strongly prefer the option of not opening up any extra land for logging in the Tongass.

The endangered Marbled Murrelet also deserves protection from extinction. The Marbled Murrelet lives only along part of the coast in Alaska, Canada and the Lower 48. Like the Queen Charlotte Goshawk, it deserves protection from logging of the Tongass. This endangered species relies on large coastal trees. "They spend the majority of their lives at sea, but travel inland up to 50 miles to nest in old-growth forest stands (Piatt et al. 2007). Marbled murrelets typically nest on mossy-limbed branches of large, mature coniferous trees within stands of structurally complex, coastal high-volume old-growth forest. (DEIS 3-87)." The DEIS suggests "maintaining a 600-foot radius no-cut buffer zone around identified murrelet nests (3-87)," but this is not a large enough area. If only some identified trees are protected, where will the young marbled murrelets put their nests? All of the good trees will be taken. Endangered species should be protected in a way to allow their population to grow. Protecting only existing nest trees might be able to help stop their numbers from decreasing, but will not allow their numbers to increase. And there is another problem. "On land, Steller's Jays and Common Ravens prey on murrelet eggs and nestlings, particularly when fragmented forest habitat allows them easier access to nests (https://abcbirds.org/bird/marbled-murrelet/ 11/23/19.)" This is another reason we should not allow increased logging in the Tongass. Giving these birds a 600 foot radius around nesting trees still leaves them vulnerable to predation by corvids. Also, according to the DEIS, "edge-associated predation risk may subside with the progression of forest succession (3-87). However, by this time it would already be too late. Allowing corvids to prey on an endangered species until the edge effect subsides will still reduce the population of an already endangered species. I believe this is unethical.

I strongly support the No-Action Alternative #1. The other alternatives, especially Alternative 6, are unwise and unjust. Alternative 6 is positively immoral. Native Alaskans should be allowed to continue to use the Tongass for harvesting salmon and other things they need. The old growth forest is a limited resource. It does not grow back the same way ever again. The roots of the trees hold in ancient soils that have been storing carbon for hundreds of years. If we cut them down, these old soils will start to erode and slide down the mountainsides, releasing even more carbon into our already polluted atmosphere.

When I lived in the Tongass, I had trees in my back yard that existed before 1776. Why should we cut down such old trees? I believe it is important to protect the way God made Alaska (using evolution.) In Minnesota and other places down south, the old growth forest is not the same. In Southeast Alaska, "Stand-replacing fires have been extremely rare in coastal rainforests over the past several millennia." (https://www.fs.fed.us/database/feis/fire_regimes/AK_Pacific_maritime/all.html 11/24/19.) As a result, the old growth forest in Southeast Alaska contains a greater number of old trees per square mile. It is also unique because the large amounts of rainfall allow generous amounts of moss to coat every surface, and allow for a thick undergrowth to develop. The moss and the undergrowth are another part of the reason why the forest contains such a large carbon sink. The unique characteristics of the Tongass include lush green colors everywhere because of the thick moss layers, a large amount of undergrowth, and many beautiful old trees. These are some of the reasons tourists visit Alaska and cutting these old growth trees down will also hurt the undergrowth and the moss layers, especially when clearcutting is used. As stated previously, we should protect the tourism industries and the fishing industries because together, they make up 26% of the employment in Southeast AK whereas logging is a mere 1%.

As previously established, according to the IPCC we have 20 years left to limit global warming to 1.5 degrees C or we will be stuck with the consequences of climate change (https://www.nrdc.org/onearth/climate-scientists-world-we-have-only-20-years-theres-no-turning-back 11/19/19.) If we turn the Tongass and the rest of the world

into a parking lot, we will die. The Tongass functions as the lungs of the planet. It handles oxygen production and provides us with biodiversity and ecological resilience. This is one of the healthiest places on the planet. It is needed right now as an antidote to deal with all of the places on the earth that have been hurt by our carbon pollution. It will take 50-200 years for the forest to catch up and have the same amount of carbon it once had (DEIS 3-125). In the meantime, the carbon that was harvested will be thrown into the landfill in 7-40 years or less. Additionally, the amount of carbon lost from soil erosion has not been adequately considered.

Wildlife also deserves protection. There are endemic species in the Tongass National Forest area that deserve protection, including the marbled murlet, the Queen Chrolette Goshawk, the Alexander Archipeligo Wolf and the glacier bear. We should also do our best to maintain populations of other creatures which are currently healthy, such as our bald eagle population that depends on clean salmon streams. Bald eagles and healthy salmon streams are other reasons tourists pay big money to come to Alaska.

Changing the roadless rule is unpopular. The Juneau Empire (10/15/19) reports that 75 percent of Americans support the Roadless Rule. (https://www.juneauempire.com/news/forest-service-announces-potential-roadless-rule-exemption/ 11/19/19.) (This was according to a survey from the Pew Charitable Trusts, a nonpartisan research group.) We must continue to support the roadless rule and choose the No-Action Alternative #1. To do otherwise would hurt the economy, harm tourism, and increase the amount of climate change we face in an already over polluted and fragile earth. It would hurt our wildlife, including endemic and endangered species. Therefore, clearcutting in the Tongass is simply unthinkable, untenable and immoral. None of the other alternatives, 2-6, are suitable to meet the needs of the people and wildlife that depend on the Tongass National Forest. Please see the attached source, https://forestlegacies.org/wp-content/uploads/2016/01/tongass-report-emissions-2016-01.pdf, for additional relevant information.

I will wait for your reply.

Sincerely,

Erika X. Carls Johnston

[See attachment containing the following technical resource: "The Tongass Rainforest as Alaska's First Line of Climate Change Defense and Importance to the Paris Climate Change Agreements"]

[Position]

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[Position]