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To Whom It May Concern,

1. I do support the existing Roadless Rule governing the Tongass National Forest (Tongass) in Southeast Alaska, the biggest reserve of coastal temperate rainforest-bigger than any other forest.

2. I do not support a "new" stand alone Alaska Roadless Rule Exemption that would affect the Tongass.

3. Further reducing the footprint of the Tongass continues to put at peril all life not only in the Tongass and surrounding Southeast Alaska communities, but all life on Earth, especially as the society of man has not progressed to any actionable climate change protocol.

4. Further to climate change and the threat to the Tongass and other forests worldwide is the melting Arctic permafrost and the release of methane accelerated by a warming planet. Matt McGrath's Permafrost warming in parts of Alaska 'is accelerating' (22 October 2015) included

[Vladimir Romanovsky, University of Alaska professor and head of Global Terrestrial Network for Permafrost, the

primary international monitoring programme] One of the world's leading experts on permafrost has told BBC News that the recent rate of warming of this frozen layer of earth is "unbelievable".

Researchers worry that methane frozen within the permafrost will be released, exacerbating climate change.

Methane is a powerful greenhouse gas and researchers estimate that the amount in permafrost equates to more than double the amount of carbon currently in the atmosphere.

Neither Alaska or the United States governments have testified before the United Nations declaring Alaska's melting permafrost, and escaping methane to be worthy of inclusion in the climate change protocol. Would it not seem prudent to leave the Tongass intact as a stabilizing mechanism for weather, the environment that does contribute to the world's jet stream and weather patterns.

5. Communities have already explored and engaged in carbon credit agreements where an annual payment for keeping stands of timber intact, resulting in lucrative returns. Carbon Offsets for Urban Trees Are on the Horizon - Austin, Texas, and King County, Washington, are testing carbon credits for planting and protecting urban trees, by Maria Dolan (28 August 2018) includes

The evidence is in: Urban trees improve air and water quality, reduce energy costs, and improve human health, even as they offer the benefit of storing carbon. And in cities across the country, they are disappearing.

A recent paper by two U.S. Forest Service scientists reported that metropolitan areas in the U.S. are losing about 36 million trees each year. The paper, by David Nowak and Eric Greenfield, was an expansion of the same researchers' 2012 study that found significant tree loss in 17 out of the 20 U.S. cities studied.

This arboreal decline is happening even in some areas that promote "million-tree" campaigns, Arbor Day plantings, and street-tree giveaways. Cash-strapped municipalities just can't find enough green to maintain the green. Additionally, many cities are adjusting to population booms, and to temperature increases and drought due to climate change-both conditions that can be hard on trees (while increasing their value as sources of cooling and cleaner air). There's also a growing recognition of the inequity of tree-canopy distribution in many cities, with lush cover in wealthy neighborhoods and far fewer trees in disadvantaged areas.

To find more funding for urban trees, some local governments, including Austin, Texas and King County, Washington (where Seattle is located), are running pilot projects with a Seattle-based nonprofit called City Forest Credits (CFC). The nonprofit is developing a new approach: generating funding for city tree canopies from private companies (and individuals) that wish to offset their carbon emissions by buying credits for tree planting or preservation.

The vast majority of forest carbon credits worldwide have been issued for trees in tropical rainforests and other forests far from urban areas. A study released last year of the forest offsets in California's cap-and-trade program found that they are effective at reducing emissions.

The new credits aim to quantify not only the carbon benefits of urban trees, but also rainfall interception, energy savings from cooling and heating effects, and air-quality benefits. CFC has no role in marketing or selling credits for specific projects, but maintains the standards (protocols) and credentialing for other organizations that sell them. A third-party firm, Ecofor, verifies compliance for tree-preservation projects. Tree-planting projects are either third-party verified, or, for smaller projects that cannot afford that, verified by CFC with peer review, using Google Earth and geocoded photos.

To be eligible for the credits, city tree projects must follow protocols created specifically for urban forests-rules governing such specifics as the location and duration of a project and how the carbon will be quantified.

Land possibilities there, so they differ from traditional carbon credits," said Ian Leahy, director of urban forestry programs at the non-profit conservation group American Forests, and a member of the CFC protocol board.

I think the work is innovative and potentially game-changing," said Zach Baumer, climate program manager for the City of Austin. (Baumer also serves on the protocol board for CFC.)

To harness the market to create environmental benefits in cities is a great thing.

Austin

The City of Austin aims to be carbon neutral in government operations by 2020. To get there, it has been reducing emissions through energy efficiency, renewable energy, alternative fuels, and hybrid and electric vehicles. But the city will still need offsets to claim neutrality.

If governments and businesses choose to purchase these credits, they could help fill that gap, and they can keep their dollars local. Austin is running two pilot projects this year with CFC: a riparian reforestation project near a creek and a tree-planting project on school-district land. The City of Austin is purchasing the credits for both projects from the nonprofit TreeFolks, via CFC.

6. The U.S. Government's vast inventory of idle and often contested Federal lands countrywide could be redirected towards a major National forest silviculture program overseen through long-term leases or outright state land grants. Consideration of each state's historic tree inventory, whether mixed or mono crop conifers or deciduous, would aid in establishing expansive forces that could be managed for carbon capture, terrain stabilization/erosion reduction, windbreaks, climate stabilization, or for sustainable rotational timber harvest to meet local and overseas marketing needs - all are a win-win with increased employment opportunities, plus regional environmental and economic benefits.

Employment and cross training for current logging community members could make for a ready to work force, participating in the initial forest development tasks. Such tasks, accomplished in stages from site selection and layout; road building and culvert installation; soil preparation/enrichment; identifying water bodies and/or well-

drilling sites for seedling irrigation; fabrication, construction and building of high tunnels or like buildings for seed propagation; constructing fencing or like barriers to protect young seedlings from migrating game; installation of remote monitoring equipment, etc. Millions of trees could be planted in a myriad new forests across the United States, providing carbon capture, economic and employment opportunities.

7. The following link "Deforestation to blame for Beijing's pollution" (Xun Zhou, South China Morning Post (April 2013, updated January 2018) includes

The environmental disaster China is experiencing now goes back to the time of the Great Leap Forward in the late 1950s. To transform China into the dreamed-of industrial superpower Mao envisaged, it needed a huge amount of steel. Forests were destroyed as trees were felled to feed backyard furnaces. Many of the mountainous regions throughout China were deforested.

Deforestation had devastating consequences, causing regular soil erosion and sandstorms. In some areas, it turned paddy fields into sandy beaches and farmland into bogs. The Gobi desert might be a natural phenomenon, but the massive deforestation during the Great Leap Forward enlarged it.

A number of documents I came across in archives in China show that in the time of the Great Leap Forward, at least one third of China's open forests were chopped down and one fifth of closed forests were destroyed in areas immediately surrounding the Gobi.

In western Shaanxi province, at least 60 per cent of trees, which were originally planted to protect the railways, were chopped down. In major irrigation regions by the Jing, Wei and Luo rivers, more than 30,000 trees along the canals were felled. In Gansu province, along Tianshui region's Xiaolong mountain, and Tangou in Wushan county, some one third of the forest was destroyed."

The destruction of forests not only reduced the amount of water resources, it caused sandstorms that wiped out tens of thousands of hectares of farming land, expanding the desert ever further.

The Great Leap Forward not only resulted in a devastating famine throughout China lasting three or more years and claiming tens of millions lives, it also led to the mass destruction of agriculture, industry and trade, and infiltrated every aspect of human life, leaving large parts of China scarred forever by man-made environmental disasters. The annual sandstorms and smog in Beijing is one example.

The problem will not be solved by simply banning private vehicles and street vendors, or closing down a few privately owned factories. The government needs to put serious efforts into stopping legal and illegal logging, gigantic irrigation projects and other constructions that destroy the remaining forests and damage the

environment.

Beijing doesn't need any more huge ring roads and skyscrapers. What Beijing and other Chinese cities urgently need is a green belt. Putting more money into reforestation might be a more effective way to help tackle China's pollution problem and bring back the bright blue sky.

8. During the summer of 1993, I participated in the Tongass Cave Project (TCP) headquartered out of Thorne Bay, Alaska. The TCP was comprised National Speleological Society members. Locally, they were tasked with exploration, survey, conservation and study of karst and caves in Southeast Alaska, specifically Prince of Wales and Dall Islands - an effort to identify caves within proposed logging units which could be negatively impacted by the effects of road building and clearcutting.

I helped survey Bridalveil Cave, Curley Cave, First Plunge, Great White Cave, Hole in the Ground, King Kong Cave, Larry Pit, Moe Hole, On Your Knees Cave, El Capitan Cave, Klinger Cave. The Forest Service has since opened a portion of El Capitan near to the cave entrance for public tours.

En route to the caves, we often trekked across vast expanses of clearcuts, sweltering heat, dusty air, and treeless, save for an occasional lone eagle tree that had long since died from sudden and terminal thirst. Descending into the caves there was always a noticeable drop in temperature, often chilly, with either the sight of or the sound of running water-water, from above-ground runoff meandering through the vast karst system, water vital for the spruce roots' survival.

9. China's Gobi Desert, some might argue, is not Southeast Alaska, however, an intact old growth forest in China in the 1950s does relate to the intact old growth coastal temperate rain forest, the Tongass, in Southeast Alaska in 2018. Anyone living in central and southern Southeast Alaska can honestly attest to our warming summers, warmer springs, falls and winters. Southeast's Tongass clearcuts and young growth stands during these warm spells can reach upwards of 10-15F warmer in temperature than in old growth canopied stands, with the latter's understory suffering less moisture and vegetation loss due to the effects of drought. 2018 has continued to be a record drought year. Locally, our canopied property attests to the temperature variance versus our neighbor's non-canopy property which can register 10-20F warmer.

10. The Tongass is fragmented (due to extensive and prolonged timber harvest) but its remaining Old Growth reserves are still functioning as living and breathing lungs, a very necessary part of Earth's infrastructure-the second growth (aka young growth consume carbon but are more susceptible to bug infestations including spruce aphids, hemlock sawtooth worm, and spruce bark beetle. The clearcut's logging debris adds to carbon pollution as it decomposes-selective group harvest helicopter logging increases hillside carbon pollution as unmarketable and discarded tops, butts and limbs remain upslope because helicopter removal would be cost prohibitive. The Tongass remains all inclusive in her capture of carbon pollutants - 25% of pollutants are collectively captured by the world's forests, 25% go into the world's oceans (ocean acidification), the remainder (50%) into Earth's upper

atmosphere. Deforested and harvest land allows for increased surface land temperature versus forested land provides shade and reduced soil moisture reduction.

11. All forests contribute 20-30% to Earth's atmosphere through oxygen turnover-necessary for all oxygen-breathing beings, like you and me.

12. As a Southeast Alaska resident and commercial fisherman, I am very aware of the need for an intact Tongass conifer canopy which does, in fact, keep cool upslope channels and streams, the necessary tributaries for spawning salmon. The same conifer canopy protects out-migrating smolts in the spring that are in peril if released too early following early snow or ice melt or failed to freeze upslope ponds and lakes. Their premature early springtime release into larger warming waterbodies lack the presence of invertebrates, terrestrial and aquatic insects, etc., affects juvenile body weight and greatly increases their risk for survival and susceptibility to ocean predators as they progress their outbound migration to the Pacific Ocean. The presence of ocean algae blooms due to warming ocean conditions has a lasting impact on the marine food web, often affecting the lifespan of out-migrating fish.

13. In 2015 and 2016, hundreds of thousands of Alaska seabirds were washed ashore, including tufted, and horned puffins, common murre, crested auklets. As noted in the USGS 8 December 2016 release, A Marine Mystery: What's Causing Seabird Die-Offs in Alaska?

Only a fraction of birds that die at sea become beached, and of those, only a small portion are observed by people before they are removed by scavengers. As a result, many more birds may be affected by the die-off than has been recorded.

To determine cause of death, eight puffin carcasses-six tufted puffins and two horned puffins-were collected by ASCPI ECO biologists and sent to the USGS National Wildlife Health Center in Madison, Wisconsin, where scientists conducted necropsies, or animal autopsies, on the birds. The USGS found that these fish-eating puffin were severely emaciated and likely died of starvation. The animals showed no sign of disease.

Starvation of the birds could be related to a lack of prey or changes in prey distribution as a result of abnormal sea temperatures. Unusually high sea surface temperatures were recorded in October for the Bering, Beaufort and Chukchi Seas. Coupled with record low levels of sea ice, these temperatures could affect populations of forage fish and squid upon which seabirds like puffins depend.

In 2015-2016, the USGS and USFWS investigated and documented a large-scale die-off of common murre in the Gulf of Alaska with similar findings of starvation.

14. Alaska's Sea Birds: Where, when, and why they need us - AK on the GO, by Rebecca Duerr; On the Coast/CBC News' 14 September 2015 story Dead Whales in Pacific could be fault of the Blob

Scientists believe the mysterious deaths of more than two dozen whales [fin and humpback whales] in B.C. and Alaska since May [2015] are probably related to the so-called "Blob" of warm water in the Pacific Ocean. The Blob is a 1,600 kilometre wide patch of warmer-than-usual water that has been linked to several anomalies in the Pacific, including a massive toxic algae bloom that contaminates the krill and sardines that many whales eat.

[The whales] were attending a couple major parties, and unfortunately, they got food poisoning," said Andrew Trites, a UBC professor studying the dead whales. "Each krill body was essentially a gel capsule full of poison. And if they ate enough of it, it's going to cause brain damage, and eventually seizures.

in the worst cases . . . it causes death.

The toxic algae is eaten by creatures like sardines and krill, which are in turn eaten by larger creatures like whales. The toxins build up in creatures higher up in the food chain, multiplying the poison's effects.

When we look at the bodies that have washed ashore, the few that were recovered, they all looked to have been in pretty good condition. No signs of being hit by a ship, no signs of starvation, no fishing gear around them, and so right away we can start to rule these things out,"he said.

Although B.C., and Alaska have never seen anything like this before, Trites says a similar situation is unfolding in California, where creatures like sea lions, seals and seabirds - which also eat sardines - have also been dying since the algae bloom began.

15. Drought in a rainforest? Yes, by Leila Kheiry/KRBD (13 June 2018) included

Southeast Alaska is the kind of place where you can get a lot of rain but still be in the middle of a drought. It's home to the Tongass National Forest, the largest of about a half-dozen temperate rainforests in the world.

In August, Ketchikan easily broke the previous record for summertime rainfall, with 44.2 inches falling since June

1st. September, though, marked the start of lower-than-average rainfall. Communities scattered through the lush evergreen forest measure rainfall in feet. Ketchikan is one of the wettest, with about 12 feet of annual average precipitation.

Rick Thoman is a climate scientist with the National Weather Service. "Drought is one of those things that, it seems like, oh, everybody knows what a drought is. But the more you think about it, the harder it gets to pin down," he said. A drought is a deficiency of precipitation over an extended period of time. The deficiency level and the time period can vary, Thoman said. And, whether or not it becomes a "drought" also depends on how much demand there is on water resources - by people and the environment.

Considering all those variables, Southeast Alaska is in the middle of a drought. It started last fall, following a wetter-than-normal summer. Ketchikan, for example, received record rainfall levels in August.

But then, Thoman said, "starting in September, we see that precipitation in Ketchikan totaled a little over 11 inches. That doesn't sound like a drought to me, being a Fairbanksan. Sounds like an awful lot of precipitation. But by Ketchikan standards, that was actually below normal." Normal in September is closer to 15-16 inches. And then: "October, again, over 11 inches of rain, but that's well below normal in Ketchikan in October, followed by well-below normal precipitation in November, as well," Thoman said.

October usually sees 15-25 inches of rain; a typical November is slightly under that, but similar. November last year, though, was around 8 inches. December and January went back to average levels, Thoman said, but then February and March were dry - again by rainforest standards. All that means overall precipitation in Southeast Alaska since fall has been below normal. By a lot. "September to February: The driest of record in this analysis since, this would be since 1925-26 - southern Southeast has not had a drier September to February." October to March also was the driest for its time frame. Rainfall in April and May improved the situation somewhat, but a deficiency remains.

Aaron Jacobs is a senior hydrologist with the weather service's Juneau office. He said that deficiency has had an effect on the region. Hydroelectric power generation, for example, was hit hard. "The main reason for this type of an impact is the lack of precipitation in the wet season," he said. "If Southeast Alaska doesn't get that rain in that October, November and into December time frame, there could be deficits in water levels that may not be able to recover."

And when hydroelectric dams don't have enough water, communities need to use more-expensive diesel power.

Jacobs said a drought also affects community drinking water supplies, seafood processors, and the natural habitat of the entire forest. Salmon have a difficult time spawning when streams don't have enough water, Jacobs

said, and yellow-cedar mortality increases when rainfall is lower than normal.

What will happen next? Thoman said there isn't a clear signal at this time. "We do have increasing signs of an el-Ni[n]tilde]o developing for this fall and winter, and that often has a significant precipitation signal in Southeast Alaska," he said. "So, at this point I would say as we move towards the wet season for Southeast, stay tuned."

And, as rainforest residents know, keep your rain gear handy.

16. As a Southeast Alaska commercial fisherman, I have personally observed the foreign freighters transiting in Southern Southeast Alaska, loaded to the rails with raw, unprocessed logs for export from the Tongass (the Forest Service can export 60% of their harvest in the round). This totally invalidates the Alaska Forest Association's ongoing argument for the Forest Service to increase the available timber on the Tongass to save the dying mills in Southeast, and timber related jobs. Where is that same critical voice for the Alaska Mental Health Trust, Sealaska, University of Alaska and other large property owners who send 100% of their timber harvest overseas?

17. U.S. taxpayer subsidies have provided millions of dollar in corporate welfare for logging road construction and/or repair, culvert installation and/or replacement, haul costs from the stump to awaiting freighters; as well as costs related to pre-commercial thinning of second growth aka young growth.

The website www.justthefacts.com/nationaldebt.asp includes

As of October 4, 2018, the official debt of the United States government is \$21.6 trillion (\$21,599,377,345,082).

This amounts to:

\$65,710 for every person living in the U.S.

\$171,119 for every household in the U.S.

106% of the U.S. gross domestic product.

623% of annual federal revenues.

Taxpayers for Common Sense article, Money-Losing Timber Sales: Tongass National Forest (18 March 2015) concludes

The federal government has a responsibility to ensure a fair return to the public for development of taxpayer-owned resources. The USFS is losing more than \$20 million per year from timber sales on the Tongass, year after year. Timber spending in the Tongass is too wasteful to continue, and its burden should be shouldered by the companies that benefit from timber sales, not by taxpayers.

18. For decades, I have enjoyed living, hiking, hunting, and camping in the Tongass. Over the years, many of my favorite "go to" haunts have been uniformly clearcut, leaving behind a completely decimated environ-obliterating

all productive habitat for brown and black bear, wolves, deer, moose, elk, birds and other migrating fauna.

A second growth mature canopy is now calculated out to 300 years. The punched through logging roads are often lesser quality in construction material and design, constructed for short-term use thereby reducing or eliminating multiple-use activities by the taxpaying public. These roads are often immediately water-barred with culverts removed following completion of contracted sale.

19. Several years ago I attended the first Petersburg Ranger District "Forest Stewardship Program" meeting hosted by then Petersburg Ranger District/Deputy Forest Supervisor Jason Anderson.

I asked whether the collective recommendations from these meetings would make it up the chain of command within the Forest Service? He advised "probably not" as the higher-ups had their own set of priorities. To another question regarding "productive habitat for deer and other forest dwellers" that was being eliminated on Kupreanof Island, the South Lindenburg Peninsula in particular, by continued extensive clearcutting, including the elimination of leave strips, he said the Forest Service "managed the forest for timber harvest not productive deer habitat".

I did not return for subsequent meetings since "public comment" was not going to be considered in the decision-making process. Reflecting on the call now for public comments on the "new" standalone Roadless Rule for Alaska might simply be another "box" checked off for "public comment"?

20. Earlier this century, Zarembo Island experienced a major deer die-off following a large timber harvest, a clearcut. The following spring after a cold and snowy winter, whole deer carcasses were found across the unit. The deer's productive habitat and canopy cover had been removed, only an expansive clearcut remained. Terrain, slope, elevation, soil stability, and exposure to prevailing storm winds come into effect throughout the Tongass - following timber harvest, unintended and consequential conditions occur.

21. The Alaska Department of Fish and Game Sitka Black-tailed Deer Species Profile includes

Summer and winter home range areas vary from 30-1,200 acres and, for radio-collared deer. The average distance between summer and winter home ranges is five miles for migratory deer and half a mile for resident deer. Movement of deer between watersheds appears to be minimal during winter. During winter, the distribution of deer at various elevations is influenced by changing snow depth. During extreme snow accumulation, many deer congregate in heavily timbered stands at lower elevations and some may even move on to the beach.

Deer research on Prince of Wales Island provides a general idea of how much habitat a Sitka black-tailed deer needs, and what deer densities are in good years in good habitat. That work indicates 20 to 25 deer per square

mile. That's about one deer per 26 to 32 acres. A NFL football field is 160' x 360' feet or 1.3 acres. An area encompassing 20 to 25 football fields is about the area needed to support a deer, and that's good habitat with forage for winter and summer, with a mix of canopy cover and open areas.

22. The above comments support my love for the Tongass. For centuries, her flora has functioned as a non-stop life-sustaining lung exhausting oxygen; she has provided safe harbor for countless resident and migrating fauna; and she continues to consume carbon pollutants, benefiting Earth.

Continued clearcutting of the Tongass leaves her in jeopardy for the future, on a planet experiencing often unprecedented climatic changes - Alaska's own rising sea levels and eroding shorelines; her warming and acidic ocean conditions spawning algae blooms resulting in toxic poisoning affecting the marine food and killing marine mammals and thousands of seabirds; her melting glaciers raising river and stream levels and overflowing banks, threatening neighborhoods and communities with flooding; unprecedented fluctuations in our jet stream and weather patterns; more wild fires; and drought conditions, etc.

For future life on Earth, and the Tongass, mankind needs to "think outside the box". Abandoning the comfort of the status quo in favor of researching and understanding the cause and effect of today's globally warming climate and carbon pollution problems is a start towards safeguarding planet Earth - currently, our only home - home to the poorest of the poor to the wealthiest; the ever increasing "refugee" population, worldwide, including those on drowning islands in the South Pacific or erosion-threatened islands in Western Alaska; the millions in drought-stricken communities across the African continent, the Middle East, and Yemen, dying of thirst and famine and adding to the world's refugee population - while here in Alaska some are wanting to further destroy another coastal temperate rain forest!

Safeguarding the Tongass from continued timber harvest is but one stabilizing effort that could be part of Alaska's, the United State's commitment towards enacting an international climate change protocol. Worldwide, all forests should be protected - their collective lung capacity and oxygen generator benefits all life. There are conifer and deciduous tree seeds and seedlings that could be planted this month, this year, domestically and overseas as "tree farms" to capture carbon pollution, to meet future timber needs, locally and worldwide.

23. I support Alternative 1: "Alternative 1 takes no action and would leave all of Alaska under the 2001 Roadless Rule, including the Tongass National Forest."

[Position]

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