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Comments: Global climate change is a new and significant threat to humanity and ecosystems. We have a moral and legal obligation to minimize and mitigate this threat. See 2015 Oslo Principles on Global Climate Change Obligations. <http://www.osloprinciples.org/>. See also Carle (2015). Climate Change Seen as Top Global Threat. <http://www.pewglobal.org/2015/07/14/climate-change-seen-as-top-global-threat/> Climate change is caused by excess CO2 and other greenhouse gases transferred to the atmosphere from other pools. All temperate and tropical forests, including those in this project area, are an important part of the global carbon cycle. Agency decisions about forest management can either be part of the problem or part of the solution. Since the time the resource management plan was written, there is significant new information reinforcing the need to conserve all existing large stores of carbon in mature & old-growth forests in order to keep carbon in forests and out of the atmosphere in order to mitigate climate change. Since all forests are an important part of the global carbon cycle, the agency must do its part by managing forest to maintain and increase carbon storage. Global warming is caused by the cumulative build-up of greenhouse gases, especially carbon, in the atmosphere. Logging will add to the cumulative total carbon emissions so it is clearly part of the problem and must be minimized and mitigated.

USDA reports "There is a robust scientific consensus that the Earth's climate has changed and will continue to change as human activities increase the concentrations of greenhouse gases in the atmosphere. This global scale change is affecting North America, which is very likely to experience significant warming and changes to temporal and spatial patterns of precipitation over the next several decades."

http://web.archive.org/web/20100309092233/http://www.usda.gov/oce/global_change/files/SAP4_3/SAP_4.3%20Web%20Brochure.pdf

Climate change has the potential to affect our forests in fundamental ways that implicate the fundamental requirements to manage federal lands "without impairment of the productivity of the land" as recognized by NFMA and FLPMA and MUSYA. The ICBEMP authors found that "disturbance processes of disequilibrium landscapes eventually recalibrate through reduction of productivity and loss of species the biophysical capability and species diversity to a new equilibrium with attendant reductions in land use options." Quigley, T.M., and S.J. Arbelbide, Technical Editors. 1997. An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins. PNW-GTR-405. vol I, p 48. Actions that exacerbate climate change are not consistent with the mission, goals, and legal duties of the Forest Service.

Our forests are an important part of the global carbon cycle. Designating this area for timber production will increase carbon emissions and make climate change worse, while forest conservation will help store more carbon in the forest and keep it out of the atmosphere where it contributes to global climate change.

Logging the National Forests is part of the cumulative global problem of carbon emissions. The global carbon cycle is globally distributed. There is no single place, or single activity that can fix the climate problem. All agencies must take steps to reduce GHG emissions. We can't point the blame elsewhere or find the solution elsewhere.

Any area being considered for a new land allocation, should be considered for management to maximize carbon storage, which is harmonious with wildlife habitat, clean water, recreation, etc. The FS needs to recognize that wood is over-produced, while carbon storage is under-produced due to market imperfections.

The FS is proposing to designate this area for timber production. The agency should reconsider timber targets in light of the fact that the public needs carbon storage to reduce global climate change much more than they need

wood products. The agency must recognize that wood products are already under-priced and over-supplied due to "externalities" (costs that are not included in the price of wood, so they are shifted from wood product producers and consumers to the general public who suffer the consequences of climate change without compensation from those who profit from logging related GHG emissions). Ecosystem carbon storage on the other hand is under-supplied because there is not a functioning market for carbon storage and climate services. The FS is in a position to address these market imperfections by focusing on unmet demand for carbon storage instead of offering wood products that are already oversupplied.

Land protection, both public and private, provides substantial ecological benefits by avoiding conversion of natural systems to intensive, developed uses. These benefits include carbon sequestration, watershed functioning, soil conservation, and the preservation of diverse habitat types (e.g., Daily 1997, Brauman et al. 2007, Kumar 2012, Watson et al. 2014). Land protection also solves a key market failure: private markets tend to underprovide socially beneficial land uses such as natural forests, agricultural lands, or managed timberlands. The reason for this failure is that many of the benefits of these lands go to the public in general, not individual landowners. When private values and market transactions determine land uses, less land will be devoted to socially beneficial uses than if citizens could collectively determine use on the basis of social values (e.g., Angelsen 2010, Tietenberg and Lewis 2016).

Katharine R.E. Sims, Jonathan R. Thompson, Spencer R. Meyer, Christoph Nolte, Joshua S. Plisinski. 2019. Assessing the local economic impacts of land protection. *Conservation Biology*. 26 March 2019
<https://doi.org/10.1111/cobi.13318>,

https://harvardforest.fas.harvard.edu/sites/default/files/Sims_et_al-2019-Conservation_Biology.pdf.

Public forests should be managed to correct for market imperfections. If markets were perfect, economic theory indicates that they would efficiently allocate resources in an optimal way to meet societies needs for wood, water quality, water quantity, biodiversity, recreation, scenery, nutrient cycling, and climate stability. Unfortunately, markets are not perfect, but luckily the agency can play a role in reducing the adverse effects of market imperfections.

When markets are imperfect it leads to inefficient allocation of resources. For instance, in the case of logging, there are numerous negative "externalities" such as water pollution, habitat loss, and greenhouse gas emissions, which shift some of the economic costs of production off the books of timber producers. These costs are borne by the public in the form of reduced ecosystem services, polluted water supplies, reduced enjoyment of wildlife, and climate instability. When costs are shifted from wood products producers/consumer to the public, it means that wood products are under-priced, which leads to excess demand and over-production.

Meanwhile, well-conserved forests provide numerous "public goods" such as clean water, biodiversity, and carbon storage - important economic values which cannot currently be captured, monetized, and sold in a market. If producers can't find a functioning market for these public goods they will be under-produced and demand for public goods will go unmet in our market economy. This is where the agency can step in to meet the unmet demand for public goods instead of feeding the demand for wood products that is artificially high due to externalities.

Looking across Oregon's patchwork forest landscape shaped by these market distortions, we clearly have a vast oversupply of wood and an vast under-supply of public goods. This explains why we have thousands of miles of forest streams that do not meet water quality standards, numerous imperiled species of fish and wildlife that rely on forests and streams, and hundreds of millions of tons of carbon that has been transferred from Oregon's forests to the atmosphere where it contributes to global warming. All these "costs" of logging do not show up on

the balance sheets of the timber industry, but they are real costs borne by the public. When such costs are not reflected in the price of wood products, the logger can sell wood at an artificially low price which leads to artificially high demand.

Private forests are typically managed to maximize private values like profits from logging, while public values tend to be forgotten because the landowner cannot capture and sell them in an open market. The lack of a ready market for public goods results in the over-supply of wood and an under supply of clean water, viable populations of wildlife, and climate stability (which cannot be marketed or privatized). This is where public forests come in.

Public forests can and should be managed to provide the public with those "public goods" that private forests are not motivated to provide. Since wood is already over-supplied from private lands, public forests should therefore be used to meet important public purposes for which they are best suited, including clean water, habitat for restoration for imperiled species, and climate stabilization. All these require forest conservation and will be frustrated by inappropriate logging.

The FS should not use a Categorical Exclusion for this plan amendment. Global warming and its consequences may also be effectively irreversible which implicates certain legal consequences under NEPA and NFMA and ESA (e.g., 40 CFR [sect] 1502.16; 16 USC [sect]1604(g); 36 CFR [sect]219.12; ESA Section 7; 50 CFR [sect]402.9, 402.14). All net carbon emissions from logging represent "irretrievable and irreversible commitments of resources." Susan Solomon, Gian-Kasper Plattnerb, Reto Knutti, Pierre Friedlingsteind. 2009. Irreversible climate change due to carbon dioxide emissions. PNAS February 10, 2009. Vol. 106 no. 6 1704-1709. <http://www.pnas.org/content/106/6/1704.full.pdf>.

Each substantive issue discussed in these comments should be (i) incorporated into the purpose and need for the project, (ii) incorporated into a NEPA alternative, (iii) carefully analyzed as part of the effects analysis, and (iv) considered for mitigation.
