July 23, 2020

Oregon Global Warming Commission
Attn: Catherine Macdonald
550 Capitol St. NE
Salem, OR 97301

CC:
Peter Daugherty
Oregon Board of Forestry
Kristen Sheeran
Jason Miner

Re: Cost-Effective Policy Proposal to Increase Forest-Carbon Stocks

Dear Oregon Global Warming Commission,

Thank you for your continued efforts to help our state rapidly reduce greenhouse gas (GHG) emissions and adapt to the impacts of climate change. The 21 organizations signed onto this letter were encouraged by Governor Brown's Executive Order on Climate Action (EO 20-04) signed on March 10th of this year. The Executive Order recognizes that state agencies must take prompt action to avert the worst impacts of the climate crisis, and provides the Oregon Department of Forestry (ODF) with a clear mandate to increase carbon stores in Oregon's forests.

We would like to share with you a bold and visionary proposal to grow carbon stocks on state-owned public forestlands managed by ODF. The State of Oregon can maximize carbon storage in its State Forests by adopting climate-smart logging practices – such as longer harvest rotations, greater tree retention, and increased stream buffers – in addition to decoupling harvest mandates on all remaining native and old-growth forests. Such an approach will also optimize other ecosystem services that make forests, fish, wildlife, and nearby communities more resilient to the impacts of a warming planet.

Oregon's State Forests are an immensely valuable public asset, and we believe now is the time to enlist these forests in the fight against climate change. Given the current climate crisis we now face, we urge the OGWC to work with ODF and scientists at Oregon State University (OSU) to develop a set of policies that will weave climate objectives into the management paradigm of our State Forests.

Forests Are a Natural Climate Solution

The Intergovernmental Panel on Climate Change (IPCC) has repeatedly made clear that in order to avoid catastrophic climate change, it is essential that we rapidly reduce fossil fuel emissions while simultaneously growing carbon pools in the world's forested ecosystems (IPCC 2019). One analysis found that natural carbon solutions – such as improved forest management – can provide roughly one-third of the carbon reduction the world needs to meet the goals laid out in the 2015 Paris Climate Accord (Griscom et al. 2017).

One analysis published earlier this year considered various strategies to grow carbon pools on natural and working landscapes, and analyzed their associated carbon benefits if applied in Oregon. The study found that among the 10 strategies considered, ***deferred timber harvest offered by far the greatest carbon benefits***. If ambitiously implemented across Oregon's forestlands, this strategy would capture and store an additional 5.2 million metric tons of CO2e annually – which represents over half of the carbon storage potential of all 10 strategies combined (Graves et al. 2020). Clearly, improved forest practices in Oregon can play a major role in helping the state achieve the carbon reductions outlined by EO 20-04.

Scientists around the world have found that ***the most effective strategy to remove carbon from the atmosphere at a scale that can meaningfully contribute to global climate stability is to better preserve the world's forests (Artaxo et al. 2018).*** This is especially relevant to ODF, which manages hundreds of thousands of acres of forestland that have the potential to store carbon at a higher density than almost any other ecosystem on the planet (Buotte et al. 2020).

However, the industrial logging practices that ODF uses to manage our State Forests negate these carbon benefits. Countless studies from OSU researchers spanning numerous decades have found that the best way to keep forest-carbon out of the atmosphere is to keep it stored in mature forest ecosystems – not wood products (Hudiburg et al. 2013; Law et al. 2011; Harmon et al. 1990; Law et al. 2018).

Over the past half-century, scientists have come to realize that forests are not simply collections of trees valuable primarily for the production of wood; rather, forests are complex, diverse ecosystems with a wide variety of functions and benefits. Forestry that emphasizes biodiversity, complex forest structure, climate resilience, carbon storage, and other ecosystem benefits is known as "**climate-smart forestry.**" This approach differs starkly from industrial management in many ways. Perhaps most importantly, climate-smart forest practices utilize the best available science to inform forest management decisions that enhance a wide variety of ecosystem benefits – such as watershed function, carbon storage, and wildlife habitat – in addition to advancing economic objectives.

Scientists have found that climate-smart logging practices – such as extended rotations, wider riparian buffers, and increased tree retention – can lead to dramatic increases in carbon storage. One analysis found that forestry operations certified by the Forest Stewardship Council (FSC) in Oregon and Washington store more than 30% more carbon compared to standard forests practices – notably, this accounts for the carbon stored in forest ecosystems *and* wood products (Diaz et al. 2018). Other studies have found that extending rotations to 80-100 years (instead of 40 years) optimizes the wood-production potential of our west-side forests – leading to more average wood production per acre per year.

State Forests Are Climate Assets

Our publicly-owned forestlands can play a major role in helping Oregon meet its carbon reduction goals, while bolstering the resilience of our communities and ecosystems to the impacts of climate change. The Governor's EO calls for a dramatic reduction in GHG emissions (45% below 1990 by 2035). These reductions will only be possible through a swift transition away from fossil fuels combined with a concerted effort to increase carbon sequestration and long-term carbon storage in Oregon's carbon-rich forestland.

Earlier this week, the Governor's office clarified that ODF is meant to play a major role in helping the state meet its carbon reduction goals by increasing carbon pools in Oregon's forests. Here are a few take-aways from the July 20 letter written by Jason Miner and Kristen Sheeran (emphasis added):

- **Oregon's forest resources are one of the state's greatest assets in the fight against climate change.** Governor Brown expects (ODF) to become a regional leader in climate-smart forestry…
- (ODF) should **prioritize the goal of improving carbon sequestration and storage** and reducing greenhouse gas emissions.
- **The urgency of climate change demands a departure from business-as-usual for the Department of Forestry and all state agencies.**

This letter makes explicitly clear that ODF must advance specific policies that promote climate-smart forestry in Oregon. We believe that adopting climate-smart forest practices in our State Forests is a logical extension of this mandate, and would help establish Oregon's leadership in pursuing natural carbon solutions.

To understand the role that improved forest practices on public lands can play in reducing excess carbon levels, consider the carbon consequences of the Northwest Forest Plan (NWFP). Prior to 1994, the National Forests of Oregon and Washington were ***net sources of carbon emissions***, due to management decisions that prioritized timber production over other values; however, due to the protections gained from the NWFP, these same National Forests are now ***carbon sinks***. In fact, each year these carbon stocks grow by 7 million metric tons of carbon, the equivalent of 24% of all fossil fuel emissions in both states (USFS Pacific Northwest Research Station, Watts et al. 2017).

Unfortunately, ODF's current forest practices are largely negating the climate-fighting potential of our State Forests. For example, ODF's 2021 Annual Operating Plan (AOP) calls for an additional 5,932 acres of clearcuts in State Forests. Despite their mandate to meaningfully address climate

change, ODF's 2021 AOP emphasizes even-aged harvest (i.e. clearcutting), short-rotations, monoculture timber plantations, and other industrial forest practices (business as usual).

By adopting climate-smart logging practices and protecting native and old-growth forests on state lands, ODF can help Oregon's communities and ecosystems adapt to the impacts of a warming climate. Scientists predict that more precipitation will fall as rain instead of snow in the decades to come – leading to increased peak flow events and landslides, as well as prolonged droughts and water shortages.

Two scientific studies conducted in Oregon have documented a sharp decline in summer streamflow in basins subjected to industrial forest practices. Analysis of six decades of data from paired watersheds in the HJ Andrews Experimental Forest showed that basins that had been clearcut and replanted produced 50% less water during summer months than adjacent paired basins with mature forest cover (Perry & Jones 2016). Another multi-decade analysis in the Oregon Coast Range found that 40-50 year rotations of Douglas-fir plantations can produce persistent summer low-flow deficits of up to 50% when compared to adjacent basins with older trees (Segura et al. 2020).

We must reform the management of our public forestlands immediately if we hope to avert the worst climate impacts such as water shortages, floods, and landslides.

Conclusion

The OGWC is charged with identifying carbon mitigation strategies that are "cost-effective" and proven to "decrease in cost as their deployment becomes more widespread." ***Establishing carbon storage as a key management objective for our State Forests is such a strategy***. A memo from Chair Macdonald dated July 10, 2020, specifies that policy recommendations developed by OGWC should consider co-benefits that may be relevant to other state goals. Improving forest practices comes with a wide variety of co-benefits that make people, plants, and animals more resilient to climate impacts in the years ahead.

ODF's most significant legal mandate for managing State Forests is to fulfill the "Greatest Permanent Value" – which includes an array of social, economic, and environmental benefits to all Oregonians. As excess GHG levels in the atmosphere raise global temperatures, Oregonians will experience major disruptions in our economy and our society at large, which will come with a tremendous price tag. Oregon's State Forests are one tool we can use to reduce atmospheric carbon dioxide; therefore, growing carbon stocks on state lands must be considered one of the greatest permanent values of these forests.

Given the current climate crisis we now face, ODF should actively identify opportunities to grow carbon pools on public lands – while promoting forest resilience to climate impacts. By shifting away from clearcut-plantation forestry and adopting the principles of "climate-smart forestry," Oregon can demonstrate how to support rural economies while simultaneously supporting a wide variety of ecosystem services.

We look forward to working with you to develop forest management policies that will truly realize the Greatest Permanent Value of our State Forests in the face of climate disruption by implementing climate-smart forestry. In the coming weeks, we will follow up on this letter with more detailed policy recommendations.

Sincerely,

350PDX

Cascadia Wildlands
we like it wild.

KS Wild
Klamath-Siskiyou Wildlands Center

OREGON WILD

Defending & Restoring Mt. Hood
BARK

OREGON
PSR
PHYSICIANS FOR SOCIAL RESPONSIBILITY

BEYOND TOXICS
Leadership For a Clean and Just Oregon

FUSEE
Firefighters United for Safety, Ethics and Ecology

OREGON LEAGUE of CONSERVATION VOTERS
OLCV

OLCV
METRO CLIMATE ACTION TEAM

Great Old Broads For Wilderness
Get Into The Wild
Forest-Rivers Regional Advocacy Team

Umpqua Watersheds

Southern Oregon Climate Action Now
SOCAN
Confronting Climate Change

ROCPAC
RURAL OREGON CLIMATE POLITICAL ACTION COMMITTEE
WWW.ROCPAC.ORG

Southern Oregon
Pachamama Alliance

350 EUGENE

South Umpqua Rural Community Partnership

EUGENE

Sunrise Beaverton

DEMOCRATIC PARTY of OREGON
Environmental Caucus

cse
CENTER FOR SUSTAINABLE ECONOMY

Chart from Graves et al. 2020: Potential greenhouse gas reductions from Natural Climate Solutions in Oregon

Table S3. Estimated annual reductions in $MMTCO_2e$ for each NCS activity under three different implementation scenarios in years 2035 and 2050. Upper and lower bounds of 90% confidence interval are shown in parentheses.

NCS Activity		Scenario/Year					
		Limited		Moderate		Ambitious	
		2035	2050	2035	2050	2035	2050
Avoided Conversion	Forest avoided conversion	-0.05 (-0.04, -0.05)	-0.05 (-0.04, -0.06)	-0.24 (-0.20, -0.27)	-0.26 (-0.22, -0.29)	-0.48 (-0.40, -0.55)	-0.52 (-0.44, -0.58)
	Grassland avoided conversion	-0.006 (-0.005, -0.007)	-0.01 (-0.005, -0.007)	-0.04 (-0.03, -0.05)	-0.06 (-0.05, -0.07)	-0.06 (-0.05, -0.07)	-0.06 (-0.05, -0.07)
	Sagebrush-steppe pathways	-0.01 (-0.005, -0.02)	-0.02 (-0.01, -0.04)	-0.07 (-0.02, -0.13)	-0.19 (-0.04, -0.34)	-0.20 (-0.05, -0.34)	-0.35 (-0.08, -0.60)
Land Management	Deferred timber harvest	-2.31 (-2.08, -2.54)	-2.40 (-2.13, -2.66)	-3.36 (-3.04, -3.68)	-3.45 (-3.11, -3.81)	-5.03 (-4.53, -5.52)	-5.20 (-4.64, -5.75)
	Cover Crops	-0.003 (-0.002, -0.005)	-0.003 (-0.002, -0.005)	-0.13 (-0.07, -0.18)	-0.24 (-0.14, -0.33)	-0.54 (-0.33, -0.78)	-1.06 (-0.65, -1.50)
	No-Till	-0.01 (-0.004, -0.016)	-0.01 (-0.004, -0.016)	-0.13 (-0.06, -0.20)	-0.13 (-0.06, -0.20)	-0.09 (-0.04, -0.14)	-0.17 (-0.07, -0.27)
	Nutrient management	-0.07 (-0.04, -0.10)	-0.07 (-0.04, -0.10)	-0.10 (-0.06, -0.13)	-0.10 (-0.06, -0.14)	-0.16 (-0.09, -0.22)	-0.16 (-0.09, -0.22)
Restoration	Post-wildfire replanting (Federal Land)	-0.07 (-0.04, -0.10)	-0.15 (-0.12, -0.19)	-0.12 (-0.06, -0.17)	-0.24 (-0.19, -0.31)	-0.22 (-0.09, -0.34)	-0.45 (-0.32, -0.58)
	Riparian Reforestation	-0.14 (-0.13, -0.15)	-0.21 (-0.20, -0.22)	-0.31 (-0.29, -0.33)	-0.83 (-0.78, -0.88)	-1.47 (-1.39, -1.56)	-1.86 (-1.76, -1.95)
	Tidal Wetland restoration	-0.005 (-0.001, -0.008)	-0.01 (-0.004, -0.02)	-0.01 (-0.003, -0.02)	-0.02 (-0.01, -0.03)	-0.01 (-0.003, -0.02)	-0.03 (-0.01, -0.05)
Overall annual reductions		-2.67 (-2.34, -3.01)	-2.92 (-2.54, -3.31)	-4.45 (-3.75, -5.16)	-5.45 (-4.55,-6.38)	-8.15 (-6.79,-9.50)	-9.74 (-7.91, -11.5)

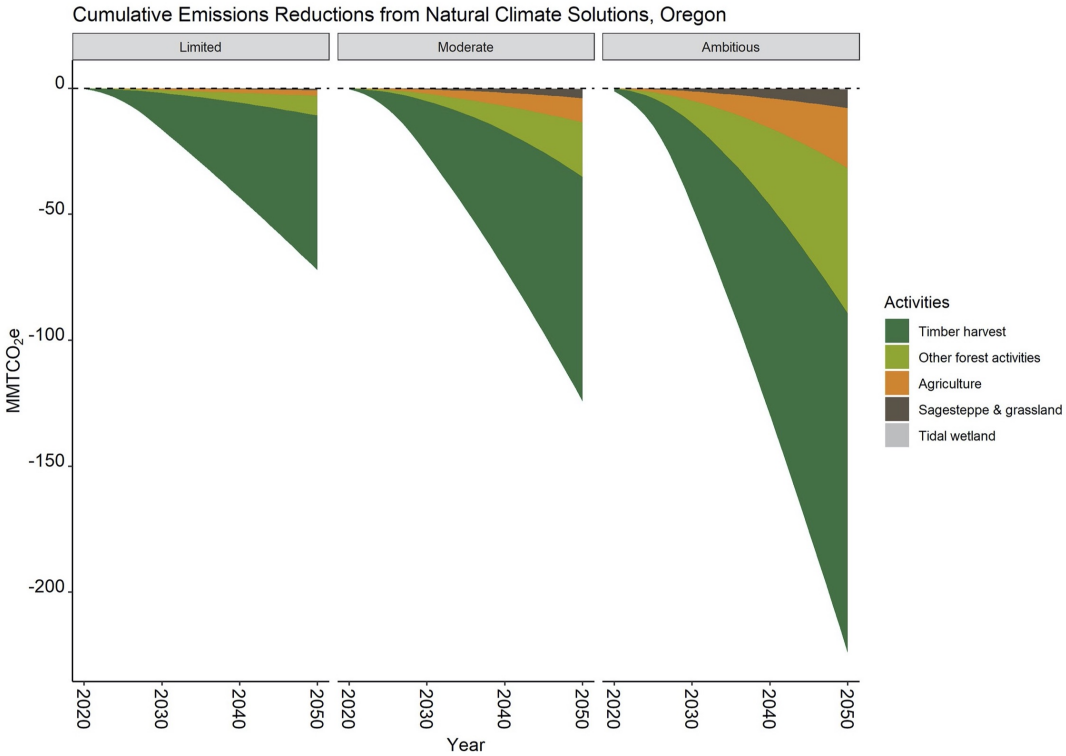

Fig 4. Cumulative GHG emission reductions from NCS activities in Oregon under three implementation scenarios. Results illustrate the large contribution from deferred timber harvest (dark green) as compared to other forest-based activities (light green), agricultural activities (orange), sagebrush-steppe and grassland (brown), and tidal wetlands (grey).

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