Cindy Haws, Rising Moon Ranch
2888 N Myrtle Rd
Myrtle Creek, OR 97457

RE SB 1530

Chair Dembrow, Vice-Chair Olsen, members of the Committee: Thank you for listening,

For the record my name is Cindy Haws, I have a family farm in Southern Oregon and have been in agriculture all my life as was my father's family throughout many generations. I am here which is not easy for me to be here at this time. But I am very concerned that you will not take the kind **of bold action needed to get us out of the climate change mess** and change the **unsustainable economic paradigm** we find ourselves in. We have waited too long already and it is essential that you don't make mistakes of the past by too little too late and giving into industry including timber, mining, gas, and all of the big polluters. I want you to know that it is already costing all of us and we are already suffering. This is unjust, unnecessary and wrong. The longer you avoid doing the right actions the longer we all suffer more and more. We are headed toward an untenable future that no one will be able to afford to fix. This stresses me out not just daily but pretty much every minute of the day. I am a mother and grandparent and I care that my children and grandchildren have clean air, water, **the ability to grow their own food** and live a good healthy life.

Including a long history of farming in my family and for a corn and soybean company, I also have a unique broad experience base in natural resources. I have worked in many areas of forest management. Over the course of 40 years I worked in forest engineering, fire, silviculture, timber, range management, recreation and I became a professional wildlife biologist. I have seen and learned allot.

Douglas County where I live is a poverty stricken community that suffers in many ways under one of the most polluting industries in the State, the timber industry. And it is typical that poverty occurs where the greatest environmental injustice occurs. This is apparent when a real economic analysis is done that accounts for all of the costs of the industry versus the benefits and the loss of precious natural resources. According to Oregon Office of Economic Analysis, current wood products jobs are 23000 versus other jobs that are 1,952,000. That is, timber is only 1% yet causes HUGE costs and impacts to the rest of us, the ecosystems, and the planet. Further, According to Schlesinger, Law, Hudiburg, Berner Kent, Buotte, and Harmon (PNAS April 3, 2018 115 (14) 3663-3668) CO2 emissions from logging/wood products industry is the highest polluter in the State (35%). Comparing forest fires at 4%. Then let's add on one of the impacts that is directly affecting me and many others in my community who have worked hard all their lives to establish a quality of life – the water resource. I want you to understand that it is not just municipal water resources but thousands of us Oregonians that live rurally up various watersheds on family farms depending upon the water that is supposed to be stored and cleaned and provided by our natural water towers called **forests**....which we live downstream and use **to grow food**. Logging is eliminating our water resource with 50% loss of summer flows (Julia Jones and Timothy Perry 2016) and I have been observing this for the past 35 years I have lived at my farm. This is caused by

CH

logging but then add on climate change and you have a double whammy. I have watched as water trucks parade more and more up and down the road just to provide drinking water for residents, a cost that poor locals must incur, Bilger Creek, a permanent stream near me has dried up over the past 5 years when it didn't before. I have watched a fellow rancher have to truck water from a distance to his livestock as a result. It is not going to get better it is only going to get worse. Of course if you are one of the rich landowners usually associated with industry to which the government usually includes on their "steakholder" committees you probably have the best water resources but the rest of us, the people you represent, suffer.

One of the failings of the government over and over again is the concept of "steakholders" and choosing same people who have caused the problem in the first place to decide what to do as if they will solve the problem but instead only look after their own interests. We have lived that over and over here. What ends up happening is the baby is cut over and over until it is dead. And that is what I have seen in regards to natural resource management.

The biomass that trees put on was meant to be energy storage for the future forest. We now also understand their role in carbon storage with many publications now and a body of science pointing to where we need to go. So when humans remove them they are taking out the savings account and they do not return it since their plan is to log over and over and over as if there was no end to what the soil and species they destroy can provide. As calculated and published in peer reviewed science journals, OSU scientists and other scientists across the nation have determined that instead of storing carbon in forests the **industry causes the release of two thirds of the forest carbon in a tree into the atmosphere as CO2.** On top of that tree planting seedlings not only do not make up for this deficit but create huge fire hazards by causing extents of dense even canopy small diameter trees everywhere. I have paid a price of the fires caused by this condition both in money and health. My solar panels did not produce hardly any electricity during the fire events of 2016-2018 due to the fires. My investment in solar panels is in the form of a loan that I am still paying that off even with the incentives. **It is costly** to allow these industries to do what they do.

I will be providing more detailed information of the economic costs with this written testimony. But now I want to explain what we in rural Oregon really need. If you intend to establish a tax then to support such a tax an effective and direct system of supporting rural residents (not the status quo industry) is needed. People want to have a purpose driven life with a meaningful job. My recommendation is that the State promise **new economic and education infrastructure** to rural communities to get them off the reliance on one industry. So for example if you build it they will come – In terms of education rural community colleges or separate colleges should be built in rural areas to provide education for alternative energy jobs, my nephew had to go out of state to do this. Also the state needs to fund the development of manufacturing facilities in these rural towns such as alternative energy, hemp products (that we receive from the Midwest and make into things as that is the type of plant that makes many products) not CBD, mushroom growing and packing facilities as they are an excellent food source and easy to grow and distribute, poultry processing facilities as we only have one in the north too far away from raising pasture poultry and processing them effectively, things like medicine processing facilities, and others. Towns like Roseburg need new industries not the status quo.

CH

This would help the people and make them feel the cap and trade taxes are worth it. You need to be more upfront with what you intend to do now so the public will be served by the taxes we pay.

Thank you for listening and I hope that you step up to the task as you are so very important in this moment of reckoning. Please help maintain love and faith in humanity because right now it is seriously teetering on the 6th greatest planetary extinction with and that is a very lonely and sad place to be.

As per Ernie Niemi, Natural Resource Economist, summary of a recent completed analysis entitled "Bigger than Expected: Climate Disaster Costs and Emissi

ons-Reduction Benefits" is include here as part of my testimony supporting my points and concerns as to the impacts upon Oregonians and the planet.

Key Points:

1. The risk of climate disasters is worse than most of us expected just a short time ago.
    a. My comment: Recent impact to the most profitable fishery Dungeness Crab is a prime example. Do we just keep up doing the things that contribute to the impacts? The benefits from salmon far outweigh the costs to some industry for Oregonians. So economic impacts to the causing industries is warranted. They certainly didn't prove they could do it on their own and I and we are already paying for it. This is quantifiable and widespread in damages done to rural land and water productivity. We have had plenty of costly damage from climate influenced weather events in Douglas County in recent years from long droughts to snow downs that left many without power for over a month. That cost lots of people. In fact a very nice couple up the road from me lost a life because of the "snowmegeadon" and others had injuries and medical problems and so on and you know those costs are not accounted for.
2. Climate disasters already are imposing costs on Oregonians:
    a. Data from NOAA show that the largest domestic climate disasters in 2018 reduced Oregon's GDP by up to $750 per household.
    b. Climate – disaster costs will rise. Data from state/federal agencies and peer- reviewed scientific reports indicate that quantifiable costs will rise $15,000 per person household from increased food costs, income reductions, wildfires, and exposure to smoke, deaths from heat waves, loss of salmon, and diversion of federal services to cope with disasters elsewhere. Unquantified costs will be larger.
    c. My additional comment to this analysis: I invested in a solar panel array. I took out a loan and am still paying it off. With a debt and of course interest that makes it harder for me to make ends meet on a farm I did it anyway. When logging around me both contributes to climate change and increases the risk of forest fires due to the extent of even aged plantations and low average diameter trees well that is going to continue to make my effort to collect solar energy much more costly. It was in 2017 and 2018. So how much do Oregonians pay to facilitate logging?

CH

3. Economists measure climate risks using the social cost of carbon dioxide (SCCO2) i.e., the net global damages from the emission of one metric ton of CO2 (MtCO2). Estimates of the SCCO2 have risen, from an *expected* value of about $40.-$50. Per MtCO2 in 2016, to an *expected* value of $417/MtCO2. Recent science indicates, however, that climate disasters will prove worse than expected, and the SCCO2 could be 2X-8X greater, or $800-$3,300 per MtCO2.
    a. My Comment: E.O. Wilson, a prominent scientist in his book *The Future of Life* discusses the fact that the environmental point of no return is directly tied to the economic point of no return. Civilizations have and will collapse. We have already lost huge areas and productivity the more we go down that path the more we lose. I just saw an article where in Chile ranchers are starting to see wildlife herbivores as the enemy due to years of drought caused by climate change. Summer grazing months are shortening here. I certainly have experienced that. You get more days of it is too hot to water than not. I know some people just pour the water on and don't care because they have $$ from other sources and bought water or have old water rights but in general it is costing most.

4. As the costs of climate change disasters rise, so too do the economic benefits from reducing GHG emissions. *Bigger than Expected* estimate the potential climate-disaster benefits (reduced costs) for actions addressing Oregon's **two largest sources of emissions**:

    - **Reduction in fossil-fuel emissions**
        - **Gasoline/diesel**
        - **Passenger vehicle mileage**
        - **Coal**
        - **Oil**
        - **Natural gas**
        -
    - **Reductions in forest-related emissions**
        - **Not converting forest to cropland**
        - **Converting cropland to forest**
        - **Letting trees grow longer before logging**
        - **Reducing timber harvest**

There is more to Mr. Niemi's report and I include it as my testimony by reference here. This is much more an accurate accountability of the public cost from the above emitters.

We must take a new look at the **real economics** and **how you can support rural communities** and **take bold action to arrest climate change** so we can prevent the horrific costs to Oregonians. I stand for a sustainable and stable economy not a growth based linear system that has nothing to show for it the end but loss

CH

Sincerely,

Cindy Haws

Received: 18 February 2016 | Revised: 17 July 2016 | Accepted: 26 August 2016
DOI 10.1002/eco.1790

WILEY

SPECIAL ISSUE PAPER

Summer streamflow deficits from regenerating Douglas-fir forest in the Pacific Northwest, USA

Timothy D. Perry | Julia A. Jones

Geography, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331, USA

Correspondence
Julia A. Jones, Geography, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331, USA.
Email: jonesj@geo.oregonstate.edu

Abstract

Despite controversy about effects of plantation forestry on streamflow, streamflow response to forest plantations over multiple decades is not well understood. Analysis of 60-year records of daily streamflow from eight paired-basin experiments in the Pacific Northwest of the United States (Oregon) revealed that the conversion of old-growth forest to Douglas-fir plantations had a major effect on summer streamflow. Average daily streamflow in summer (July through September) in basins with 34- to 43-year-old plantations of Douglas-fir was 50% lower than streamflow from reference basins with 150- to 500-year-old forests dominated by Douglas-fir, western hemlock, and other conifers. Study plantations are comparable in terms of age class, treatments, and growth rates to managed forests in the region. Young Douglas-fir trees, which have higher sapwood area, higher sapflow per unit of sapwood area, higher concentration of leaf area in the upper canopy, and less ability to limit transpiration, appear to have higher rates of evapotranspiration than old trees of conifer species, especially during dry summers. Reduced summer streamflow in headwater basins with forest plantations may limit aquatic habitat and exacerbate stream warming, and it may also alter water yield and timing in much larger basins. Legacies of past forest management or extensive natural disturbances may be confounded with effects of climate change on streamflow in large river basins. Continued research is needed using long-term paired-basin studies and process studies to determine the effects of forest management on streamflow deficits in a variety of forest types and forest management systems.

KEYWORDS

climate change, native forests, plantations, stationarity, succession, water scarcity

1 | INTRODUCTION

Widespread evidence that streamflow is declining in major rivers in the United States and globally has raised concerns about water scarcity (Adam, Hamlet, & Lettenmaier, 2009; Dai, Qian, Trenberth, & Milliman, 2009; Luce & Holden, 2009; Vörösmarty, Green, Salisbury, & Lammers, 2000). Climate change and variability are implicated as causes of many streamflow trends (Lins & Slack, 1999, 2005; McCabe & Wolock, 2002; Mote et al., 2003; Hodgkins, Dudley, & Huntington, 2003, 2005; Stewart, Cayan, & Dettinger, 2004, 2005; Nolin & Daly, 2006; Hamlet & Lettenmaier, 2007; Barnett et al., 2008; Jefferson, Nolin, Lewis, & Tague, 2008; Lara, Villalba, & Urrutia, 2008; Dai et al., 2009; Kennedy, Garen, & Koch, 2009; Jones, 2011). However, large-scale plantation forestry, often using non-native tree species, is expanding in much of the temperate zone on Earth, despite widespread evidence that intensive forestry reduces water yield (Cornish & Vertessy, 2001; Andréassian, 2004; Brown, Zhang, McMahon, Western, & Vertessy, 2005, Farley, Jobbágy, & Jackson, 2005; Sun et al., 2006; Little, Lara, McPhee, & Urrutia, 2009). Water yield reductions are greater in older plantations, during dry seasons, and in arid regions (Andréassian, 2004; Brown et al., 2005; Farley et al., 2005; Sun et al., 2006). Yet, downstream effects of forestry are debated (van Dijk & Keenan, 2007).

Despite general studies of water partitioning in forested basins (e.g., Budyko, 1974, Zhang, Dawes, & Walker, 2001, Jones et al., 2012), it is unclear how streamflow varies during forest succession, relative to tree species, age, or growth rates in native forest and forest plantations (Creed et al., 2014). In the Pacific Northwest of the United States, forest plantations have reduced summer streamflow relative to mature and old-growth forest (Hicks, Beschta, & Harr,

 Copyright © 2016 John Wiley & Sons, Ltd.