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Chair Imeson, Members of the Board,

In testimony before the Board of Forestry on 11/07/2018, a representative from the Oregon Forest and Industries Council suggested that Oregon Wild was misrepresenting the science in our claims on carbon and forests. Below, please find published peer-reviewed research supporting our assertion that logging is Oregon's #1 *emitter* of carbon. These materials will also support testimony to be given on 11/08/2018 by Jason Gonzales of Oregon Wild, and will support the statements and claims made by many other conservation organizations. Further resources can be found at https://oregonwild.org/climatereport.

Thank you for considering the science when making decisions, I urge all members to take a close look at the Perry/Jones study and really understand the implications of what it says.

-Jason Gonzales Oregon Wild

Graph: Fate of Carbon from Harvested Wood

- Data from <u>Methods for calculating forest ecosystem and harvested carbon with</u>
 <u>standard estimates for forest types of the United States</u> Smith, et al. (2006)
- Data also from <u>Patterns and mechanisms of the forest carbon cycle</u> Gower, et al. (2006)
- Design by Jarrett Matthews

Graph: Oregon's Annual Carbon Emissions (2011-2015)

• Data from Land use strategies to mitigate climate change in carbon dense temperate forests - Law, et al (2018), and the Oregon Global Warming Commission

1. <u>Land use strategies to mitigate climate change in carbon dense temperate forests</u> - Law, Beverly E. (Oregon State University), et al. (2018)

- Logging is Oregon's largest source of carbon emissions.
- Between 2011–2015, forest fires only accounted for 4% of Oregon's total carbon emissions each year, whereas logging accounted for roughly 35%.
- The Pacific Northwest represents some of the highest carbon density forests in the world, which can store carbon in trees for 800 years or more.
- Extending the harvest intervals on private lands would have major climate benefits.
- Cut logging on public lands in half would have huge climate benefits.

2. <u>Severe fire weather and intensive forest management increase fire severity in a multi-ownership landscape</u> - Zald, Harold S. J., et al. (2018)

• Old-growth forests are much more resilient to forest fires compared to young, dense tree plantations.

3. <u>Summer streamflow deficits from regenerating Douglas-fir forest in the Pacific</u> <u>Northwest, USA</u> - Perry, Timothy D., and Julia A. Jones (2016)

- Old-growth forests are much better at storing and releasing water than timber plantations.
- 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
- Reduced summer streamflow in headwater basins with forest plantations may limit aquatic habitat and exacerbate stream warming
- Legacies of past forest management or extensive natural disturbances may be confounded with effects of climate change on streamflow in large river basins.

4. <u>High-Biomass Forests of the Pacific Northwest: Who Manages Them and How Much is</u> <u>Protected?</u> - Krankina, Olga N., et al. (2014)

- The level of protection for high-biomass forests varies by state, for example, 31% of all high-biomass federal forests in Washington are in high-protection status compared to only 9% in Oregon.
- The forests of the Pacific Northwest are among the most carbon dense ecosystems in the world.

6. <u>Spatial models reveal the microclimatic buffering capacity of old-growth forests</u> - Frey, Sarah, et al. (2016)

• Mature and intact forests also provide shade that keeps streams cool and oxygenated for salmon and trout.

7. <u>Climate Change in the Pacific Northwest</u> - US Fish & Wildlife Service (2011)

• As the climate warms, Oregon will continue to see more precipitation falling as rain instead of snow, more floods and landslides, and more frequent and prolonged droughts.

8. <u>Forestry, Landslides, and Public Safety</u> - Oregon Board of Forestry (2001)

• Healthy forests with low road density and mature trees reduce the risk of landslides.

10. <u>Rate of tree carbon accumulation increases continuously with tree size</u> - Stephenson, Nathan, et al. (2014)

• Old forests store far more carbon than young forests.

• Large, old trees do not act simply as senescent carbon reservoirs but actively fix large amounts of carbon compared to smaller trees; at the extreme, a single big tree can add the same amount of carbon to the forest within a year as is contained in an entire mid-sized tree.

11. <u>Achieving climate connectivity in a fragmented landscape</u> - McGuire, Jenny, et al. (2016)

- Large, intact wild areas facilitate the migration of species to higher latitudes and elevations where they can find cooler areas or more suitable habitat.
- Facilitating movement will be crucial for preventing biodiversity losses in the climate change era.

12. <u>Protected areas: providing natural solutions to 21st Century challenges</u> - Lopoukhine, N., et al. (2012)

• Protected areas, when integrated into land use plans as part of larger and connected conservation networks, offer practical, tangible solutions to the problems of both species loss and adaptation to climate change.

13. Oregon has the weakest logging rules in the region. The neighboring states of Washington, California, and Idaho all do more to protect streams and communities from the impacts of logging practices like clearcutting and the aerial spraying of herbicides.

- Oregon lawmakers propose tightening West Coast's weakest weed killer aerial spray laws - The Oregonian (2/10/15)
- <u>Do Oregon's clear-cut and pesticide buffers protect drinking water from creeks, rivers?</u> The Oregonian (8/20/13)
- <u>Oregon Environmental Groups, Lawmakers Target Logging Rules</u> Oregon Public Broadcasting (2/22/17)
- <u>Comparisons between Oregon Forest Practices and Other State Forest Practices</u> Oregon Stream Protection Coalition (2014)

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Protecting and restoring Oregon's wildlands, wildlife, and waters as an enduring legacy for future generations since 1974.