

## Oregon Global Warming Commission - Additional Public Comments

*These Comments were received on or after the August 4<sup>th</sup>, 2021, meeting.*

Sent via form submission from [Keep Oregon Cool](#)

**Name:** Betsy Emery

**Email Address:** [bemery@anws.org](mailto:bemery@anws.org)

**Subject:** Natural and Working Lands Proposal Testimony

**Message:** Dear Global Warming Commissioners:

My name is Betsy Emery, Advocacy and Campaign Manager for the Association of Northwest Steelheaders. We are a fishing advocacy and education organization with 800 members and nearly 5,000 supporters dedicated to protecting fisheries and habitat.

We are very excited to see the Natural and Working Lands Proposal include a number of provisions to protect and enhance estuary habitat and “blue carbon” storage. Given that estuaries absorb more carbon from the air than many forested ecosystems, protecting and restoring them is an important component of any climate change mitigation and adaptation strategy.

In addition to sequestering significant amounts of carbon, estuaries provide important habitat for salmon as they transition between fresh and saltwater environments. Healthy estuaries provide ample food and shelter for fish. Unfortunately, nearly 95% of Oregon’s forested tidal wetlands have been developed, impacting salmon populations, water quality, and coastal fishing opportunities.

If adopted, these protections will position Oregon as one of the nation’s leaders in acknowledging coastal estuary habitats are important carbon sinks while simultaneously providing substantial co-benefits to coastal communities and at-risk salmon populations. Adopting the Natural and Working Lands Proposal will also help Oregon meet the goals outlined in the Oregon Conservation Strategy - Oregon’s action plan to conserve threatened and endangered species.

Thank you for your time and the opportunity to testify.

Betsy Emery, [BEmer@anws.org](mailto:BEmer@anws.org)

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Dear Chair Macdonald and members of the OGWC,

On behalf of Oregon Wild, I am providing comments (attached) on the Commissioner Recommended Changes to Draft NWL Proposal. Thank you for your consideration of these comments and for the many opportunities to provide input during this process.

Sincerely,

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Lauren Anderson  
she/her/hers  
Forest Climate Policy Coordinator  
Oregon Wild  
[la@oregonwild.org](mailto:la@oregonwild.org)

**TO:** Oregon Global Warming Commission

**FROM:** Lauren Anderson, Forest and Climate Policy Coordinator, Oregon Wild

**RE:** Commissioner's Proposed Changes to the Draft Natural and Working Lands Proposal

**DATE:** August 4th, 2021

Dear Chair Macdonald and members of the Oregon Global Warming Commission,

Below are recommendations regarding the [proposed changes](#) to the draft Natural and Working Lands Proposal. Thank you for your thoughtful leadership on these issues. Oregon Wild strongly supports the following recommendations:

**Page 5, Outcome-Based Goal, we strongly support Alternative A:**

*Alternative A. Outcome-Based Goal: "Sequester **at least**<sup>1</sup> an additional 4 to 7 MMTCO<sub>2</sub>e per year in Oregon's natural and working lands and waters by 2030, and **at least an additional** 5 to 8 MMTCO<sub>2</sub>e **per year** by 2050, relative to a 2010 to 2020 net carbon sequestration business-as-usual baseline."*

*Alternative B. Outcome-Based Goal: "Sequester an additional 4 to 7 million metric MMTCO<sub>2</sub>e per year in Oregon's natural and working lands by 2030 and 5 to 8 MMTCO<sub>2</sub>e **per year** by 2050, relative to a 2010 to 2019 **activity-based** net carbon sequestration business-as-usual baseline."*

*Alternative C. Outcome-Based Goal: "Sequester **at least** an additional 4 to 7 million metric MMTCO<sub>2</sub>e per year in Oregon's natural and working lands by 2030 and 5 to 8 MMTCO<sub>2</sub>e per year by 2050, relative to a 2010 to 2019 **activity-based** net carbon sequestration business-as-usual baseline."*

**Support the alternative page 5, Activity-Based Metrics and Goals:**

Alternative: "To achieve the outcome-based goal, investments will be needed in technical assistance, incentives, and policy development--**including rules and regulations, when applicable/authority exists**--to support adoption of climate-smart management practices." Activity-based metrics (e.g., number of acres with adoption of soil health practices, acres of maintained resource lands, acres of riparian reforestation, and acres of urban forest canopy expansion) will help us evaluate progress. Activity-based goals for programs designed to incentivize climate smart management practices will help communities, technical assistance providers, and land managers anticipate the opportunity to adopt new practices.

**Support the alternative on page 6, paragraph 2:**

Alternative: "The OGWC recommends **that state agencies be required to the state** report on Activity, Funding and Community Impact metrics and goals as part of the OGWC's Biennial Report to the Legislature with recommendations on how to address barriers and identify opportunities to improve strategies for increasing carbon sequestration in Oregon's natural and working lands."

**Strongly support the alternative on page 6: IV. Proposed Strategies:**

<sup>1</sup> Differences between alternatives are shown in bold. Where more than two alternatives are provided the bolded items differ from the proceeding alternative.

Alternative: To achieve the ambitious outcome-based goal and further develop the Activity, Funding, and Community Impact metrics and goals, the OGWC recommends that the Legislature: (1) Position the state to leverage federal lands and investments in climate smart natural and working lands practices; (2) investigate options and create a sustained source of state funding increase sequestration in natural and

working lands; (3) fund and direct the agencies to take actions to advance natural and working lands strategies, including by **providing additional authority as-needed to support sequestration goals; directing agencies to incorporate sequestration as a part of their missions; requiring regular reporting to track progress in meeting goals; and funding new climate change policy positions within each natural resource agency to oversee sequestration work;** and (4) invest in improvements to Oregon's natural and working lands inventory. These actions, as described in more detail below should be guided by the recommendations that emerged during the public engagement process used to develop this proposal which is summarized below and described further in Appendix A.

**We support Alternative B on Page 9 — while DEQ should certainly invest in forest carbon offsets as part of its Cap and Reduce Rulemaking process, carbon offsets are not additional and therefore should not be part of the OGWC's policy recommendations for achieving significant additional sequestration in Oregon.**

**(2) Investigate and advance options for sustained state funding to increase sequestration in natural and working lands. Paragraph Two**

Alternative A: We can achieve some increases in sequestration by including a climate mitigation lens in existing natural and working lands programs. **In addition to natural and working lands investments that can be made through grant programs administered by OWEB and NRCS, DEQ should be encouraged to work with tribes and other stakeholders to solicit Community Climate Investments focused on conservation practices that reduce GHG emissions, particularly those that focus on achieving carbon sequestration from working lands.**

**In addition** However, to achieve the ambitious goals we recommend, new funding will be needed to:

- Fund and staff agencies to develop and implement recommendations and/or required policy changes.
- Strengthen education, engagement, and technical assistance efforts;
- Increase and deploy nature-based solutions in and around our built environment;
- Provide incentives to help land managers adopt climate-smart practices; and
- Protect and restore natural habitats that sequester carbon.

Alternative B: We can achieve some increases in sequestration by including a climate mitigation lens in existing natural and working lands programs. **In addition to natural and working lands investments that can be made through grant programs administered by OWEB and NRCS, DEQ should be encouraged to work with tribes and other stakeholders to solicit investments focused on conservation practices that reduce GHG emissions, particularly those that focus on achieving carbon sequestration from working lands.**

**In addition** However, to achieve the ambitious goals we recommend, new funding will be needed to:

- Fund and staff agencies to develop and implement recommendations and/or required policy changes.
- Strengthen education, engagement, and technical assistance efforts;
- Increase and deploy nature-based solutions in and around our built environment;
- Provide incentives to help land managers adopt climate-smart practices; and
- Protect and restore natural habitats that sequester carbon.

**On Page 12, we support Alternative A:**

**• Create a blue-ribbon panel to develop an all lands strategic plan for incentivizing climate smart forestry in Oregon's forest while maintaining or enhancing Oregon's harvested wood products infrastructure. Paragraph 3**

Alternative A: The OGWC recommends that ODF evaluate a bold set **range** of scenarios including: lengthening harvest rotations on state and private forest lands; increasing protections for mature and old growth forests on state and federal lands as well as areas with high carbon storage potential and cobenefits for threatened and endangered species and improved water quality; implementing forest resilience treatments in fire-prone forests; reforesting understocked stands, areas impacted by wildfire, and riparian floodplain habitats; **increasing protections for mature and old growth forests on state and federal lands as well as areas with high carbon storage potential and co-benefits for threatened and endangered species and improved water quality; and the effects of changes in forest harvest levels on the amount of carbon stored in long-lived wood products and leakage associated with shifting**

**harvest to other jurisdictions.**

Alternative B: The OGWC recommends that ODF evaluate a bold set **range** of scenarios including: lengthening harvest rotations on state and private forest lands; increasing protections for mature and old growth forests on state and federal lands as well as areas with high carbon storage potential and cobenefits for threatened and endangered species and improved water quality; implementing forest resilience treatments in fire-prone forests; reforestation understocked stands, areas impacted by wildfire, and riparian floodplain habitats; **increasing protections for mature and old growth forests on state and federal lands as well as areas with high carbon storage potential and co-benefits for threatened and endangered species and improved water quality; and assessing the effects of any proposed changes in forest management on short- and long-term fiber supplies and the amount of carbon stored in long lived wood products.**

**Support the alternative on page 15:**

Alternative:

**E) Fund a study of the workforce and the economic development potential of carrying out the recommendations in this report and Eexpand climate-smart protection, restoration and improved management training and technical assistance programs. Paragraph 4**

Where new natural resources workforce programs are needed, they should be developed in partnership with the Oregon State Apprentice and Training Council **as appropriate**. Any new training programs **should prioritize creating real pathways to careers that provide family-wage employment for local communities and** should include union labor and give priority to diversity and equity in the workforce, including communities of color and historically underserved communities.

**On page 16, Next Steps, we strongly support Alternative C:**

Alternative A: “In order to continue to advance a natural and working lands sequestration goal and strategies, the Legislature should fund and create a Natural and Working Lands Council. The Council should be charged with **utilizing the best available data and science to** establishing a baseline for the outcome-based goal and the activity and community impact metrics within a year of its establishment. **The Council should also advise state agencies on implementation of the strategies included in this proposal and provide continued opportunities for stakeholder engagement as it develops guidance and metrics.**

Alternative B: “In order to continue to advance a natural and working lands sequestration goal and strategies, **Governor Brown should direct the agencies (ODA, ODF, OWEB, DLCD, DEQ) and the Environmental Justice Task Force to work with the OGWC to draft Activity-based and Community goals and metrics, establish the 2010 to 2019 baseline and complete a first draft of a Land Use, Land**

**Use Change, and Forestry inventory.** The Legislature should fund and create a Natural and Working Lands Council. The Council should **report Legislature and** be charged with **utilizing the best available data and science to** establishing a baseline for the outcome-based goal and the activity and community impact metrics within a year **six months** of its establishment **and then sunset.**

Alternative C: “In order to continue to advance a natural and working lands sequestration goal and strategies, **Governor Brown should direct the agencies (ODA, ODF, OWEB, DLCD, DEQ) and the Environmental Justice Task Force to work with the OGWC to draft Activity-based and Community goals and metrics, establish the 2010 to 2019 baseline and complete a first draft of a Land Use, Land Use Change and Forestry inventory. The agencies should use the best available data and science to draft the baseline, metrics and inventory.** The Legislature should fund and create a Natural and Working Lands Council. **The agencies should provide draft recommendations on the metrics, baseline and inventory to the Council for review and public comment.** The Council should report **their findings relative to the agencies’ recommendations** to the Legislature within a year **six months** of its establishment **and then sunset.**

Sincerely,

Lauren Anderson

Forest and Climate Policy Coordinator  
Oregon Wild

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I'm just wanting to confirm whether the actions at the Oregon GWC's meeting today constituted a vote to approve the natural and working lands proposal and forward it to Gov. Brown. Was that the case, or will there be another vote on a final document?

Thanks,

**Robert Mullin**

Deputy Editor/Enterprise

***RTO Insider/NetZero Insider/ERO Insider***

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If we are signed up to receive updates, will we automatically receive the final report this week, or do we need to check the website for it? Jan

*Jan Lee, Executive Director*

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Attached for your consideration is a summary of the climate science that highlights the evidence related to climate effects in Oregon. This evidence demonstrates the high risk that Oregon faces of devastating impacts on Oregon's communities, public health, resources, and environment if we fail to slow the rate of warming beginning NOW. The urgency of reducing GHG emissions was the focus of the IPCC report released today, but that report does not focus on Oregon. This summary brings home the details of the Climate crisis in Oregon, including the possibility that Oregon will likely become uninhabitable during the extended fire season during this decade.

This comment is submitted to urge you to recommend strong action by the legislature and agencies to reduce emissions from working and natural lands, and to support the preservation of standing timber as the most powerful tool we have to slow the warming.

Bob Yuhnke  
Elders Climate Action  
303-499-0425

### Climate Science Warned of Imminent Disasters, Now They Are Here

The science has warned for two decades of the consequences of inaction. Now those warnings are coming to pass with severe consequences for Oregonians. Four thousand families were burned out of their homes by last summer's wildfires and 11 killed. Communities cannot rebuild fast enough to recover in time for the 2021 fire season which is expected to be worse than last year. Best estimates indicate that hundreds more died prematurely from weeks of exposure to hazardous concentrations of fire smoke. Now this summer, twelve hundred farm families in the Klamath River valley face bankruptcy as river flows drop below levels needed to protect endangered fish and irrigate their crops.<sup>1</sup> Juvenile salmon are dying from a parasite that thrives in shallow water too hot for salmon. Nearly two hundred fatalities in Oregon and Washington were confirmed victims of exposure to excess heat during the three-day heat wave. These events are the onset of a rapidly emerging climate disaster.

The science warns that the transition from Climate Crisis to Climate Disasters will accelerate in this decade as the global mean temperature advances toward 1.5° C above the pre-industrial baseline within the next five years. We are submitting this summary of the science to provide DEQ with easy access to key findings reported by credible sources of the climate science:

- 2018 report of the Intergovernmental Panel on Climate Change;
- 2021 Oregon Climate Assessment, funded by the legislature, by OSU scientists;
- 2021 State of the Global Climate, World Meteorological Organization.
- 2018 Forest Carbon Report prepared for the Oregon Global Warming Commission.

To help Oregon avoid the looming Climate Disaster we call on DEQ to use your authority to reduce carbon emissions by half, and put the State on the path toward a clean energy economy by 2030. These goals are achievable now that HB 2021 has been enacted as Director Whitman urged in his testimony to the House E&E Committee, but only if DEQ requires the largest source sectors to take effective action to reduce emissions. Oregon's future is in your hands. We need you to act.

#### **The IPCC Findings.**

The IPCC's 2018 report reviews and analyzes the then-available scientific literature to provide the best information available to answer two critical questions posed by world leaders at the Paris Climate conference:

- 1) What are the differences between the consequences of allowing the planetary climate system to rise 1.5° C compared to 2° C above the pre-industrial background?
- 2) What limitations on CO<sub>2</sub> and other GHG emissions must be achieved to avoid overshooting a 1.5° C or a 2° C rise in global temperature?

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<sup>1</sup> <https://www.opb.org/article/2021/06/03/5-things-to-know-about-the-klamath-water-crisis/>.

**Consequences of 1.5° C and 2° C rise in global temperatures in Oregon are both unacceptable, but 2° C is significantly worse.**

The IPCC's 2018 report catalogues numerous expected adverse consequences of both a 1.5° C and a 2° C rise and in global mean temperature.<sup>2</sup> Of greatest concern to Oregon are –

1) increases in mean summer temperatures and the frequency of hot days above the 99th%ile of the baseline temperature range, and the increased duration of the summer dry season that, together, will more quickly desiccate the coastal and Cascade forests each year, increase the ignitability of forest fuels, increase the frequency and intensity of wildfires, increase the production of hazardous concentrations of fine particle pollution (smoke), and increase the adverse health consequences of public exposure to multi-day extreme hazard pollution episodes;

2) diminished summer stream flows that force curtailment of water for agricultural operations dependent on irrigation water, and contribute to warmer surface water temperatures that interfere with the survival of cold water fish species (salmonids) and contribute to algal blooms that produce toxic contamination of municipal and agricultural water supplies and fishery habitats;

3) increasing ocean acidification and ocean temperatures that together prevent reproduction and survival of some marine species, cause some native local species to abandon Oregon waters in search of cooler waters, and diminish productivity of species remaining in the local water column which in turn will reduce the catch, make commercial fishing unprofitable, and further reduce the food supply for resident orca populations;

4) the frequency and duration of extreme precipitation events that cause flooding, erosion, displacement of human populations in flood-prone areas, the destruction of freshwater and anadromous fish spawning habitat and contamination of municipal water supplies;

5) warmer winter temperatures that convert winter snow precipitation events to rainfall thereby reducing the high altitude storage of water which diminishes water resources available for agriculture and municipal uses during the spring and summer, and increases the severity of drought by reducing stream flows, causing crop loss, loss of fishery habitat, and inadequate water supplies for residential and industrial users and fire fighting.

6) longer wildfire seasons and expanded burn zones increase human exposure to hazardous levels of air pollution, including multi-week exposure to levels of fine particles (smoke) known to cause pre-mature death and other adverse health outcomes among vulnerable populations, and elevated concentrations of ground level ozone harmful to public health exacerbated by warmer summer temperature regimes that govern the chemistry of ozone formation in the atmosphere.<sup>3</sup>

**The Oregon Climate Assessment Expects Drastic Changes to Oregon's Environment this Decade from Warming Climate.**

Each of the effects of climate change predicted by the IPCC in 2018 are now occurring in Oregon. The Oregon Climate Assessment ([OCAR5.pdf | Powered by Box](#), January 5, 2021) anticipates that the destruction of property, disruption of daily life, large costs to the economy,

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<sup>2</sup> **Global Warming of 1.5° C, Chapter 3: “Impacts of 1.5° C of global warming on natural and human systems.”**

<sup>3</sup> “More Days With Haze: How Oregon is Adapting to the Public Health Risks of Increasing Wildfires,” p. 5 (Oregon Health Authority, 2019) available at [OHA 2688 More Days with Haze \(oregon.gov\)](#).

pollution of the atmosphere and water supplies, impairment of human health, and damage to wildlife, the environment and habitats will worsen in coming years as the climate continues to warm more rapidly.

The most severe immediate impact is the growing devastation caused by wildfire. The Assessment cites studies predicting the effects of warming on seasonal heat causing a six-fold increase in hot days (>90° F) in western Oregon counties during future Oregon summers (pp. 12-13), and reductions in summer precipitation (Table 2). Summers will be hotter and drier, and summer heat will start earlier and persist longer.<sup>4</sup> The Assessment concludes that these conditions are expected to increase the area incinerated by wild fires (pp. 48-54). Expected future hot, dry climate conditions are the conditions associated with severe fires in Oregon:

High-severity fires dominate wet, cool forests, including remnant old growth forests, in Oregon's Coast Range and western Cascade Range. High-severity wildfires in wet, cool forests typically are ... facilitated by extremely dry and warm springs and summers or high winds.

A 2017 modeling analysis "projected a 200% increase in median annual area burned in Oregon" during the 2010-2039 period compared to 1961-2004.<sup>5</sup> Another 2017 study looking at fires across the American West estimates a 200-400% increase in the "annual probability of very large fires."<sup>6</sup> Going forward, the Assessment makes clear that all "empirical models ... consistently project that the area burned in Oregon will increase."<sup>7</sup>

These predictions have been confirmed by recent fire seasons in Oregon and throughout the American West. In 2020 Oregon wildfires consumed 1.2 million acres,<sup>8</sup> forced 500,000 Oregonians to evacuate our homes ahead of the flames, incinerated 4,000 homes displacing 10,000 Oregonians, leaving many families homeless, and killed 11. Statewide smoke pollution during the fires threatened our lives and well-being with extreme hazard concentrations of particles known to cause pre-mature death, lung cancer, and exacerbate asthma, COPD and other respiratory conditions and cardio-vascular diseases.

As predicted by the science, the frequency, intensity, areal extent and duration of wildfires have increased significantly in the last five years. During the 2017 fire season, wildfire in Oregon destroyed more than one-half million acres for only the second time in the State's history. In 2018 wildfire consumed 660,000 acres of forest. The 2020 burn area (1.2 million acres) doubles the 2017 burn area. The next doubling, as predicted in the 2017 modeling analysis showing a 200% increase in burn area, will be 2.5 million acres burned annually.

The rapidly rising summer temperatures and diminishing summer precipitation create the conditions for Oregon to see wildfires burn 2.5 million acres each summer by 2025-30. Annual burn areas of this magnitude will destroy 15 to 25 million acres (25% to 40% of the land area of Oregon) over the course of the decade, with the potential destruction of entire communities and hundreds of thousands of homes. Insurance will not compensate for many of these losses, and the time between fire seasons will not allow communities to recover. Businesses unable to recover will go bankrupt, destroying jobs.

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<sup>4</sup> *Id.*, 3.

<sup>5</sup> Climate Assessment, 53.

<sup>6</sup> *Id.*, 54.

<sup>7</sup> *Id.*, 53.

<sup>8</sup> [https://en.wikipedia.org/wiki/2020\\_Oregon\\_wildfires](https://en.wikipedia.org/wiki/2020_Oregon_wildfires) (1,221,324 acres burned in 2020).



This predicted rapid annual expansion in fire affected area has already occurred in other forest regions experiencing increased drought and rising temperatures. In Australia annual fire zones expanded rapidly in response to drought leading to a massive wildfire season burning 46 million acres during their 2019-20 austral summer.<sup>9</sup> In 2020 burns also set records across the American West. California's burn area grew to nearly 5 million acres, and the total area burned in the 11 Western states exceeded 10 million acres: [2020 Western United States wildfire season - Wikipedia](#). The Bootleg fire now burning in the Klamath Valley has already consumed 250,000 acres, and the traditional fire season (August/September) has not even begun.

**Public Health Consequences of Fire Smoke are Immediate and Severe: Hundreds of Premature Deaths With Greatest Impacts on BIPOC and Low Income Families.**

Mortality attributed to fire includes hundreds more deaths than the lives lost directly to flames. The Oregon Health Authority (OHA) reports that "[t]he most severe recent air quality events in Oregon are due to wildfire smoke..."<sup>10</sup> OHA cited a study finding that fire smoke in 2012 "caused hundreds of premature deaths, nearly 2,000 emergency room visits and more than \$2 billion in health costs."<sup>11</sup> OHA points to the longer fire season as increasing the harm from exposure to smoke. "Fire seasons in Oregon are roughly 100 days longer than they were in the 1970s. Longer seasons mean more smoke in Oregon communities."<sup>12</sup> The greater density of smoke and longer duration of smoke exposure in 2020 likely at least doubled the mortality caused by smoke exposure compared to 2012.

New research shows that wildfire in the western U.S. now accounts for half of all fine particle pollution in some areas of the West, doubling the exposure to PM2.5<sup>13</sup> from non-fire sources including motor vehicles, power plants and industrial operations.<sup>14</sup>

A warming climate is responsible for roughly half of the increase in burned area in the United States (4), and future climate change could lead to up to an additional doubling of wildfire-related particulate emissions in fireprone areas (36) or a many-fold increase in burned area (37, 38). Costs from these increases include both the downstream economic and health costs of smoke exposure, as well as the cost of suppression activities, direct loss of life and property, and other adaptive measure (e.g., power shutoffs) that have widespread economic consequences.

Using satellite measurements of smoke plumes integrated with ground level monitored PM2.5 (fine particle) concentration data, the report estimates that between 7,000 and 14,500 deaths per year (depending on the dose/response curve used to estimate mortality from observed exposures) are attributable to fire smoke in the contiguous U.S.

Scaling these results for Oregon indicates that many hundreds of premature deaths occurred among Oregonians as a result of exposure to fire smoke in 2020. Fire smoke-related mortality will increase in future years as the area burned grows, the smoke plumes increase in density, and the dense smoke season lengthens in duration from 10-20 days to many weeks.

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<sup>9</sup> [List of major bushfires in Australia - Wikipedia](#), see Sept. 2019-March 2020.

<sup>10</sup> [Oregon Climate and Health Report](#), 40 (Oregon Health Authority, 2020).

<sup>11</sup> *Id.*, 33.

<sup>12</sup> *Id.*,

<sup>13</sup> PM2.5 are particles smaller than 2.5 micrometers in diameter.

<sup>14</sup> Burke, M. et al., [The changing risk and burden of wildfire in the United States | PNAS](#) (Jan 11, 2021).

Mortality and other health impacts such as asthma attacks and exacerbating COPD will be experienced most severely by communities already burdened by the adverse health effects of daily exposure to fine particle pollution emitted from tailpipes, power plants and industrial sources. Exposure to fire smoke during the 2020 fire season was universal. No communities were spared. But fire smoke at least doubled the annual exposure routinely suffered by BIPOC and low income communities living near major highways and industrial sources.

In addition, low income families without air conditioning are not able to escape smoke pollution by closing doors and windows during the summer heat to keep themselves safe. Workers required to work outdoors, such as farm laborers and construction crews, cannot avoid exposure.

Beyond the economic and environmental damage, social disruption, and harm to health that will result from a longer fire season and expanded fire zones, more deadly air quality will likely make Oregon uninhabitable during the fire season for the most vulnerable populations such as the elderly, children and those with existing respiratory and cardiovascular conditions.

### **Wildfire GHG Emissions Are Becoming Oregon's Largest Source of GHG Emissions.**

The Forest Carbon Accounting Project Report (2018) adopted by the Oregon Global Warming Commission finds “on average for the period 2001-2015, forest fires in Oregon appear to release around 5.3 million metric tons CO<sub>2</sub>e annually.”<sup>15</sup> But the emissions data also show that in 2002 wildfire emissions (CO<sub>2</sub>e) reached 28 mMT,<sup>16</sup> which is 5 mMT greater than transportation emissions (23 mMT) in 2019. The Report’s analysis of wildfire emission trends treats the 2002 fire year as an anomaly. The averages and calculations of CO<sub>2</sub> emissions in the Report for the analysis years are based on the annual averages for the period covered in the Report (2001-2016), minus the Biscuit fire emissions in 2002 which are omitted for the purpose of estimating the annual contribution of wildfire to Oregon’s GHG emissions.

The Report cites work by Law et al. as the source of emissions calculations.<sup>17</sup> Law, at Fig. S3, shows that the area burned in 2002 (including the Biscuit fire) was approximately 240,000 hectares (590,000 acres) compared to annual burn areas for other years within the analysis period which were all 50,000 hectares (125,000 acres) or less.

Beginning in 2017, the annual burn area has been comparable to, or has significantly exceeded, the previous high burn year, the anomalous 2002 fire year. The Report does not estimate emissions for fire years after 2016, but the obvious inference is that annual GHG emissions from wildfire in Oregon is now at least comparable to 2002 (28 mMT (CO<sub>2</sub>e)), or greater. The 2020 burn area (1.2 mm acres) was double the burn area in 2002 which suggests, based on the assumption that emissions correlate with burn area,<sup>18</sup> that wildfire CO<sub>2</sub> emissions possibly exceeded 50 mMT last year.

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<sup>15</sup> Forest Carbon Accounting Project Report, (OGWC 2018), p. 11 available at [2018-OGWC-Forest-Carbon-Accounting-Report.pdf \(squarespace.com\)](#).

<sup>16</sup> *Id.*

<sup>17</sup> Law et al., available at [pnasSI201720064 1..8](#).

<sup>18</sup> Burn area is not the only factor that contributes to GHG emissions from wildfire. Tree species, location, forest structure, age and density also play a role. But the only factor identified in data presented by Law that explains the large increase in fire emissions in 2002 compared to other years is burn area.

CO2 emissions of this magnitude from Oregon's forests may not be prevented as the planet warms, but these emissions increase the urgency of reducing anthropogenic emissions to offset the contribution that these emissions will make to climate forcing.

### **Expanding Wildfire Destruction and Smoke Mortality Correlates with Warming Climate.**

The IPCC found that global mean temperature was about 1.0° C above the pre-industrial baseline in 2010. By 2010, the climate regime had not yet triggered large increases in wildfire conditions compared to historical fire patterns in the Pacific Northwest. But by 2017 new records were being set. By 2020, the impacts of wildfire had begun to increase exponentially compared to the 20<sup>th</sup> Century baseline. The World Meteorological Organization (WMO) concluded that “[i]n 2020 – one of the three warmest years on record – the global average temperature was 1.2 °C above the pre-industrial baseline.”<sup>19</sup>

The 2018 IPCC report states that the global mean temperature is rising about 0.2° C per decade,<sup>20</sup> twice the warming rate during the 20<sup>th</sup> Century. This accelerated warming rate suggested in 2018 that 1.5° C above baseline would be reached about 2035 which provided the basis for the IPCC analysis showing that if large reductions in GHG emissions were achieved before 2030, the 1.5° C threshold could be avoided for another 15 years as all GHG emissions were reduced to zero.

This scenario for stabilizing the climate is no longer plausible. New modeling being performed for the next IPCC report, AR6, indicates that 1.5° C above the pre-industrial baseline will be reached by 2030 if GHG emissions are held to current rates, and 2° C rise reached by 2050.<sup>21</sup> The World Meteorological Organization has since announced its estimate that 1.5° C rise in global temperature will likely occur by 2026.<sup>22</sup>

Given that the frequency and ferocity of wildfire in Oregon began to increase significantly after 2015 under the climate conditions associated with 1.1° C to 1.2° C rise above the 1850–1900 baseline, the march higher toward a 1.5° C rise between 2025 and 2030 can be expected to accelerate the frequency, severity and areal extent of damage caused by wildfire. The expected 200% increase in burn area forecast by the modeling of forest responses to expected climate changes, as reported in the Oregon Climate Assessment, was performed in 2017 before the last IPCC report, and does not reflect the latest data showing that the 1.5° C threshold will be reached in this decade. The doubling of the fire zone between 2017 and 2020 is an indication that the forest response will likely be more extensive than the 2017 modeling predicted. The probability that 2.5 million acres will be burned annually by 2025-30 is highly plausible as global temperature approaches and exceeds 1.5° C above the pre-industrial baseline.

Under these conditions, easily 8 million acres, or nearly one-third of the forest between the Pacific Ocean and the crest of the Cascades, along with many communities, will be consumed by fire. If fire expands to predicted levels, 25% to 40% of Oregon (15 to 25 million acres) will be

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<sup>19</sup> World Meteorological Organization, State of the Global Climate, 6 (April 2021); available at [doc\\_num.php \(wmo.int\)](https://www.wmo.int/doc_num.php?explnum_id=7200). WMO uses the “1850–1900 baseline as an approximation of pre-industrial levels.” *Id.*

<sup>20</sup> **Global Warming of 1.5° C, Chapter. 1** (Section 1.2.1.3).

<sup>21</sup> “[Analysis: When might the world exceed 1.5C and 2C of global warming? | Carbon Brief](#) (Dec. 4, 2020).

<sup>22</sup> World Meteorological Organization, press release (May 27, 2021) available at <https://public.wmo.int/en/media/press-release/new-climate-predictions-increase-likelihood-of-temporarily-reaching-1.5-%C2%B0c-next-5>.

incinerated during this decade, economic activity will collapse and Oregon will become inhospitable to human habitation for most residents during the fire season.

The data and modeling estimates presented in the Oregon Climate Assessment and other sources predict a future in which the destruction of Oregon's forest resources by wildfire will continue until either 1) the cool and wet conditions that sustained Cascadia's forests during the 8,000 years before 1980 are restored, or 2) most of the standing forests are reduced to ash, followed by shrub or grasslands. To preserve the quality of life in Oregon, save our forests and the wildlife and industries dependent on them, and to protect public health, the climate will need to be cooled to the levels associated with atmospheric loadings of GHG gases prior to 1980.

### **To Prevent Worse Destruction, Warming Must be Stopped at 1.5°C.**

#### **Stabilizing the Climate Requires Zero Emissions.**

To restore a healthy, habitable stable climate, the IPCC provides clear guidance: the economy must first be converted to zero carbon (CO<sub>2</sub> and methane) emission energy systems, and forests must be expanded to extract CO<sub>2</sub> from the atmosphere. Climate stability can be achieved only by reducing GHG emissions to zero.

To stabilize global temperature at any level, 'net' CO<sub>2</sub> emissions would need to be reduced to zero. This means the amount of CO<sub>2</sub> entering the atmosphere must equal the amount that is removed. Achieving a balance between CO<sub>2</sub> 'sources' and 'sinks' is often referred to as 'net zero' emissions or 'carbon neutrality'.<sup>23</sup>

A stable climate regime at any level cannot be achieved by reducing emissions by 60% to 80%, as proposed by DEQ. If GHG emissions are reduced by only 60% to 80% by 2050, the global mean temperature will necessarily rise well above 1.5° C to at least 2° C. Based on the IPCC's 2018 analysis, to stabilize the climate at 1.5° C, GHG emissions must be cut nearly in half before 2030, and reach 'net zero' or 'carbon neutrality' by 2050.

Limiting warming to 1.5°C implies reaching net zero CO<sub>2</sub> emissions globally around 2050 and concurrent deep reductions in emissions of non-CO<sub>2</sub> forcers, particularly methane<sup>24</sup> (high confidence). Such mitigation pathways are characterized by energy-demand reductions, decarbonization of electricity and other fuels, electrification of energy end use, deep reductions in agricultural emissions, and some form of CDR [carbon dioxide reduction] with carbon storage on land or sequestration in geological reservoirs.<sup>25</sup>

Zero GHG emissions to stabilize the climate must be achieved sooner than later to minimize the losses and deaths associated with devastating warmer climate effects. For most sources such as vehicles and industrial processes, zero emissions can most cost-effectively be achieved by electrification. Electrification of other sources achieves zero emissions only if power is generated without pollution. Power plants must achieve zero emissions first. HB 2021 recognizes this priority by calling for an 80% reduction by 2030, and zero emission power by 2040. For other source sectors to complete the same transition, DEQ must enact a Climate Protection Program that requires them to convert to electric power or other clean technologies within this decade before Oregon becomes inhospitable to human habitation.

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<sup>23</sup> **Global Warming of 1.5° C, Chapter 2, FAQs.**

<sup>24</sup> Methane (CH<sub>4</sub>, i.e, unburned natural gas) is 20 times more powerful than CO<sub>2</sub> as a climate forcer.

<sup>25</sup> *Id.*, Exec, Summary.

Prepared by Robert E. Yuhnke  
Policy committees,  
Elders Climate Action,  
U.S. Climate Action

**Robert E. Yuhnke**, Yale Law ('72).

*PA Assistant Attorney General*: represented Department of Environmental Resources in litigation and rulemakings to achieve steel industry compliance with the Clean Air Act.

*Senior Attorney, Environmental Defense Fund*: created clean air program; helped enact acid rain, transportation planning provisions of 1990 Clean Air Act.

*Southwest Energy Efficiency Project (SWEET), Director, Transportation Program*: helped states enact electric vehicle legislation, and metropolitan planning organizations reduce regional VMT growth and traffic congestion.

*Elders Climate Action, policy team*: developed transportation strategies to achieve IPCC emission reduction goals.

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To whom it may concern

There are many ways we can reduce Oregon's carbon emissions but protecting our natural carbon sequestrators and using climate-smart forestry practices is a very important step.

Please include old growth carbon reserves on public lands, longer logging rotations, increased green tree retention and bigger riparian buffers in your Natural and Working Lands Report. Please require that emissions from logging are included in the Department of Environmental Qualities Greenhouse Gas Reporting Program as well.

These are very important ways we can reduce Oregon's carbon emissions and improve carbon sequestration now and in the future.

Sincerely, Jasper King age 12

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Sent via form submission from [Keep Oregon Cool](#)

**Name:** Ashley Knapp

**Email Address:** [ashley.knapp@tpl.org](mailto:ashley.knapp@tpl.org)

**Subject:** Copy of carbon sequestration proposal

**Message:** Hello,

Can you please send me the proposal for state goals for carbon sequestration?

Here's the report I'm referring to: "In coordination with the Oregon Department of Agriculture, Oregon Department of Forestry and Oregon Watershed Enhancement Board, the Oregon Global Warming Commission is directed to submit a proposal to the Governor for consideration of adoption of state goals for carbon sequestration and storage by Oregon's natural and working landscapes, including forests, wetlands and agricultural lands, based on best available science. The proposal shall be submitted no later than June 30, 2021."

Thank you,  
Ashley

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Chair Macdonald,

Thank you again for the robust stakeholder engagement process and the multiple opportunities to provide input on the Draft NWL Proposal as it was developed.

We have an outstanding concern which we're hoping can be addressed as you're finalizing the Proposal and background documents.

In the end, the Commission adopted a version which didn't explicitly state that the NWL Council *should also advise state agencies on implementation of the strategies included in the proposal and provide continued opportunities for stakeholder engagement as it develops guidance and metrics*, as you had proposed in Alternative A in section I. Pg. 16: Next Steps.

As you know we think engagement of the NWL Council & stakeholders in implementation is important and will strengthen these programs and ensure they work for landowners and land managers.

Is it possible to include this recommendation in the Proposal? Could it be included the background document that you're drafting or incorporated as stakeholder feedback in the section Tribal and Stakeholder Input section of the Proposal?

Thank you for your consideration of this request.

Megan Kemple and Grace Brahler, Co-Leads  
Ag/water Policy Table, Oregon Climate Action Plan Coalition

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Dear Oregon Global Warming Commission members,

Thank you for your efforts to address the need for strong action on climate change.

Specifically, I am requesting that in your report to the governor you include the following forestry practices:

- Old growth carbon reserves on public lands
- Longer logging rotations
- Increased green tree retention
- Bigger riparian buffers
- Require emissions from logging be included in DEQ's Greenhouse Gas Reporting Program

The above items will increase carbon sequestration and reduce emissions in Oregon forests and on agricultural lands.

I appreciate the opportunity to provide input to your important work. Thank you for consideration.

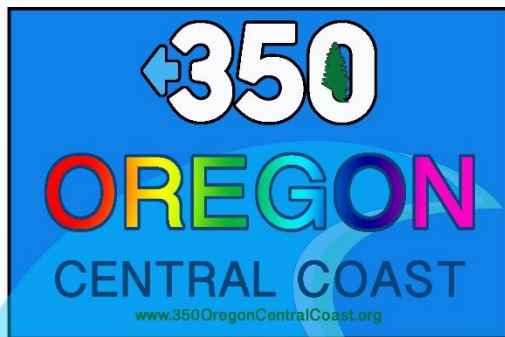
Susan Seyl  
2315 NE Everett St.  
Portland, Or 97232

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Jim Kelly, Chair, Board of Forestry  
Catherine MacDonald, Chair, Oregon Global Warming Commission

Our two coastal environmental organizations are submitting this letter to your respective organizations about the need to increase the state's natural climate solutions carbon sequestration goals. Given the seriousness of climate change and the simultaneous need to both reduce emissions and sequester more carbon, we encourage the OGWC to adopt the more aggressive goal of increasing net sequestration to 9.5 million metric tons of carbon dioxide equivalent per year. We also encourage the Oregon Department of Forestry to become a national leader in the development of smart climate forestry efforts.

Martin Desmond



**Citizens for a Better Lincoln County**  
**PO Box 2011, Newport, OR 97365**

August 17, 2021

Catherine MacDonald, Chairwoman  
Oregon Global Warming Commission  
550 Capital Street NE  
Salem, Oregon 97301

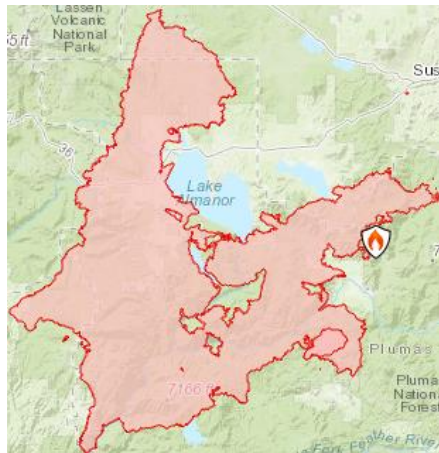
Oregon Department of Forestry  
2600 State Street  
Salem, Oregon 97310

*Climate change is threatening Oregon's forest and forest products industry, through increased severity and incidence of wildfire, drought, and greater susceptibility to insects and diseases. Climate*

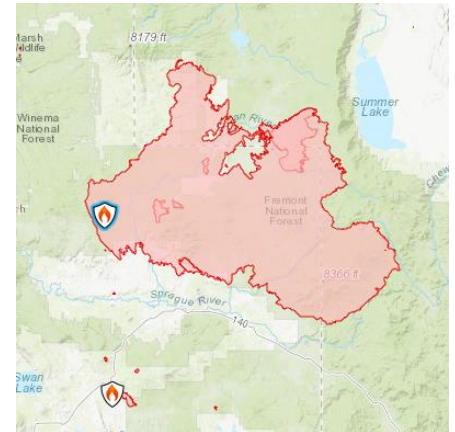
*change is an existential problem that differentially affects vulnerable populations, including people of color and lower income Oregonians.*

As you recognize this opening problem statement of the Oregon Department of Forestry's Draft Climate Change and Carbon Plan, we would like to offer our comments about this document as well as the Draft Natural and Working Lands Proposal of the Oregon Global Warming Commission.

The forest wildfires raging throughout the United States, Canada, and the world highlight the extraordinarily urgent need to arrest greenhouse gas emissions. As of the date of this letter, the Bootleg Fire in south central Oregon totals 413,000 acres. The Dixie Fire on the Plumas National Forest currently totals 463,000 acres and recently incinerated town of Greenville. The Dixie Fire has become the second largest fire in California history.



Around the world, fires are destroying forests, brush lands, and towns in Greece and Turkey. There are an estimated 10 million acres of Siberian forestlands that have burned this summer. Canada has reported upwards of 300 wildfires burning this summer. Except for staunch climate deniers here in the United States who will never accept the concept of human-induced climate change, many Americans now recognize that human-induced climate change is happening. In this letter, we would like to offer our thoughts about the two draft documents that have been drafted by your two organizations.



### **Oregon's forests store immense amounts of carbon**

The OGWC produced the Forest Carbon Accounting Project report in November 2018. The report estimated that Oregon's forests store approximately 3 billion metric tons of carbon which translates into an equivalent of CO<sub>2</sub> equivalent of 10.4 to 11.6 billion metric tons. According to that same report, Oregon's forests sequester anywhere from 23 to 63 million metric tons of CO<sub>2</sub> equivalent. To put these abstract figures into perspective, the Oregon Department of Environmental Quality estimates that Oregon companies and individuals generate approximately 62 million metric tons of CO<sub>2</sub> equivalents annually. In a quick nutshell, Oregon's forests sequester anywhere from one third to two thirds of the CO<sub>2</sub> generated annually in the state. However, all of this positive sequestration is threatened by the increasing amount of forest wildfires. As you know, over one million acres of forests that burned in September 2020. While it is too soon to make any predictions about the 2021 fire season, given the current extreme and exceptional drought conditions throughout the state, that there is a very good likelihood of another massive September fire event when the east winds return in the late summer and fall.

The state of Oregon has a fraction of the wildfire fighting resources and capabilities of CalFire yet Oregon has far more forests and biomass than the state of California. Both the Bootleg fire and the Dixie fire – as well as the Holiday Farm and other 2020 wildfires are harbingers of a likely profound destruction of both private and public forests in the state of Oregon. Interestingly, there was a recent report that forest fire intensity in California will decline sometime after the year 2030. The report was not projecting any major reductions of greenhouse gas emissions worldwide, but rather that much of the



state's forestlands and woody biomass will have been incinerated so there will not be much biomass left to burn. Oregon's forests are similarly threatened with incineration. As we can all agree, there is a critical need to protect our public and private forests from incineration.

### **Need to adopt more aggressive natural climate solutions goal**

Citing the OGWC's Natural and Working Lands proposal,

*In the most comprehensive natural and working lands assessment for Oregon, Graves et al. (2020) evaluated the potential of twelve land-use and management practices that could be taken to increase carbon sequestration Oregon's natural and working lands. Based on the assumptions about rates of adoption of the different management practices, the study projects that we could increase net sequestration in Oregon by up to 9.5 million metric tons of carbon dioxide equivalent (MMT CO<sub>2</sub>e) per year by 2050.*

Unfortunately, the OGWC is recommending less than the potential:

*Sequester an additional 4 to 7 MMTCO<sub>2</sub>e per year in Oregon's natural and working lands and waters by 2030, and 5 to 8 MMTCO<sub>2</sub>e by 2050 relative to a 2010 to 2020 net carbon sequestration business-as-usual baseline. The OGWC recommends that the natural and working lands outcome-based goal should be separate from, and in addition to, Oregon's sector-based emissions reduction goals as established by the Legislature and updated in Governor Brown's EO 20-04. Based on preliminary estimates of the current baseline, we estimate that this level of ambition represents a 10 and 20 percent increase in sequestration in natural and working lands.*

Given the seriousness of climate change and the simultaneous need to both reduce emissions and sequester more carbon, we encourage the OGWC to adopt the more aggressive goal of increasing net sequestration to 9.5 million metric tons of carbon dioxide equivalent per year.

Natural climate solutions – both at the statewide level and the national level – have the potential to help to reduce the severity of climate change. We encourage both the Oregon Department of Forestry and the Oregon Global Warming Commission to adopt aggressive policies to mitigate what we Oregonians are generating into the atmosphere.

Sincerely,

/s/  
Martin Desmond

/s/  
Bill Kucha

Cc: Governor Kate Brown  
State Representative Dave Gombert  
State Senator Dick Anderson  
Lincoln County Commissioners  
Newport City Councilors  
Lincoln City Councilors  
Toledo City Councilors  
Waldport City Councilors  
Yachats City Councilors  
Depoe Bay City Councilors

