

Supreme Court No. 99183-9

**SUPREME COURT OF THE STATE OF WASHINGTON**

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CONSERVATION NORTHWEST, et al.,

Plaintiffs/Appellants,

v.

COMMISSIONER OF PUBLIC LANDS HILARY FRANZ (in  
her official capacity), et al.,

Defendants/Appellees,

and

WAHKIAKUM COUNTY, et al.

Defendant/Appellee/Intervenor-Respondent

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**AMICUS BRIEF OF ERNEST G. NIEMI**

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## **I. INTRODUCTION**

Mr. Niemi submitted an amicus brief on September 3, 2021 that did not fully comply with the Rules of Appellate Procedure. Mr. Niemi hereby submits this corrected brief, which does comply.

## **II. APPLICANT’S INTEREST AND FAMILIARITY WITH ISSUES**

Mr. Niemi is the president of Natural Resources Economics, a consultancy in Eugene, Oregon. For forty years, Mr. Niemi has documented the external costs of timber production in the Pacific Northwest, with a special focus on the impacts to timber workers, their families, and their communities, as well as impacts to other, non-timber sectors of the economy.

## **III. STATEMENT OF THE CASE AND ARGUMENT**

Respondent Department of Natural Resources (DNR) has argued to the Court that logging on State lands yields benefits to “all the people,” as required by the State Constitution. *See* Resp. Br. at 1, 6, 8 (citing Art. XVI, § 1); 26–27; 32–33.

This brief provides information regarding the potential economic consequences of shifting away from the narrow focus on timber production. This information shows three main points: 1) Timber production on trust lands imposes economic costs on society; 2) Timber production on trust lands will likely reduce the lands' future ability to produce timber and revenues; 3) Timber production has had negative impacts on rural economies, while managing lands for conservation and restoration would likely strengthen rural economies.

**A. Timber Production Imposes Significant External Costs on the People of Washington.**

Economists commonly apply the term “external costs” to describe costs imposed on broader society because they accrue to workers, families, businesses, communities, and future generations who lie outside the pool of individuals and institutions that receive the revenues. As set forth below, DNR’s management imposes significant, unaccounted for external costs.

**1. Timber production contributes to climate change, with associated external costs.**

Timber production in Washington increases atmospheric carbon dioxide, and these increases impose economic costs on society for the foreseeable future.

DNR has stated it expects to produce about 490 million board feet (mmbf) of timber in FY2021, earning net revenues of \$165 million.<sup>1</sup> Doing so will increase atmospheric CO<sub>2</sub> through several pathways. Trees killed by logging will no longer grow bigger and sequester more carbon as they grow; logging residue will be burned as slash; mills will burn sawdust; and many wood and paper products will decompose within a few years. The extent of the CO<sub>2</sub> emissions was recently determined by researchers in Oregon, who found that timber production

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<sup>1</sup> DNR. 2021. [Quarterly Economic and Revenue Forecasts, Updated June 22, 2021](https://www.dnr.wa.gov/about/fiscal-reports/quarterly-economic-and-revenue-forecasts).  
<https://www.dnr.wa.gov/about/fiscal-reports/quarterly-economic-and-revenue-forecasts>.

increases atmospheric CO<sub>2</sub> by about 8,500 metric tons per million board feet (mmbf) of timber.<sup>2</sup>

Multiplying these numbers indicates that DNR's FY2021 timber-production program will contribute about 4.2 million metric tons of CO<sub>2</sub> to the atmosphere. This additional CO<sub>2</sub> in the atmosphere will impose economic harm on all people by exacerbating the many components of the climate crisis. Many economists have developed estimates of the economic damage per metric ton of carbon dioxide, commonly called the "social cost of carbon dioxide" (sometimes abbreviated as the "social cost of carbon"). In 2016, federal agencies estimated that each metric ton of CO<sub>2</sub> added to the atmosphere will cause economic

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<sup>2</sup> Law, B.E., et al. 2018. [Land use strategies to mitigate climate change in carbon dense temperate forests](http://www.pnas.org/content/early/2018/03/13/1720064115) <http://www.pnas.org/content/early/2018/03/13/1720064115>; Center for Sustainable Economy (CSE). 2017. [Oregon forest carbon policy: scientific and technical brief to guide legislative interventions](https://sustainable-economy.org/wp-content/uploads/2017/12/Oregon-Forest-Carbon-Policy-Technical-Brief-1.pdf). <https://sustainable-economy.org/wp-content/uploads/2017/12/Oregon-Forest-Carbon-Policy-Technical-Brief-1.pdf>.

damage of about \$40-\$50.<sup>3</sup> In 2016 the Bureau of Land Management used this estimate to determine that the external, climate-related costs resulting from logging on the forests it manages in Oregon are more than four times the value of the logs produced.<sup>4</sup>

President Biden has ordered federal agencies to employ \$51 per metric ton on an interim basis, and to recalculate the social cost of carbon dioxide using scientific findings that have emerged since 2016, with a revised estimate due in 2022.<sup>5</sup>

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<sup>3</sup> [EPA Fact Sheet: Social Cost of Carbon.](https://www.epa.gov/sites/default/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf)  
[https://www.epa.gov/sites/default/files/2016-12/documents/social\\_cost\\_of\\_carbon\\_fact\\_sheet.pdf](https://www.epa.gov/sites/default/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf)

<sup>4</sup> U.S. Bureau of Land Management. 2016. [Proposed Resource Management Plan, Final Environmental Impact Statement: Western Oregon, Vol. 2.](https://eplanning.blm.gov/public_projects/lup/57902/71567/78544/Volume_2.pdf)  
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<sup>5</sup> The White House. 2021. [Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990.](https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf)  
[https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument\\_SocialCostofCarbonMethaneNitrousOxide.pdf](https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf).

One prominent study, published in 2018, found that each metric ton of CO<sub>2</sub> added to the atmosphere will impose economic damage of \$417, and perhaps as high as \$800.<sup>6</sup> Another, submitted for publication in 2021, concluded that the social cost of carbon dioxide is at least \$562 and perhaps \$3,319 per metric ton.<sup>7</sup>

Multiplying the lower bound of the social-cost estimates times the expected level of CO<sub>2</sub> emissions indicates that it would be reasonable to anticipate that logging on the trust lands in FY2021 will impose external costs of at least \$210 million. In

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<sup>6</sup> Ricke, K., Drouet, L., Caldeira, K., and Tavoni, M. (2018). [Country-Level Social Cost of Carbon](https://doi.org/10.1038/s41558-018-0282-y). <https://doi.org/10.1038/s41558-018-0282-y>.

<sup>7</sup> Kikstra, J., P. Waidelich, J. Rising, and others. 2021. [The Social Cost of Carbon Dioxide Under Climate-Economy Feedbacks and Temperature Variability](https://www.researchgate.net/profile/Jarmo-Kikstra/publication/350443280_The_social_cost_of_carbon_dioxide_under_climate-economy_feedbacks_and_temperature_variability/links/605fc212458515e83476de2c/The-social-cost-of-carbon-dioxide-under-climate-economy-feedbacks-and-temperature-variability.pdf). [https://www.researchgate.net/profile/Jarmo-Kikstra/publication/350443280\\_The\\_social\\_cost\\_of\\_carbon\\_dioxide\\_under\\_climate-economy\\_feedbacks\\_and\\_temperature\\_variability/links/605fc212458515e83476de2c/The-social-cost-of-carbon-dioxide-under-climate-economy-feedbacks-and-temperature-variability.pdf](https://www.researchgate.net/profile/Jarmo-Kikstra/publication/350443280_The_social_cost_of_carbon_dioxide_under_climate-economy_feedbacks_and_temperature_variability/links/605fc212458515e83476de2c/The-social-cost-of-carbon-dioxide-under-climate-economy-feedbacks-and-temperature-variability.pdf)

other words, when one considers the lowest estimate of climate-related external costs, logging on trust lands in FY2021 will have a net cost of about \$45 million.

With the estimates of the social cost from the 2018 study, \$417 – \$800 per ton, the external costs for FY2021 will exceed the value of the logs by \$1,586 million – \$3,195 million. With the estimates of the social cost from the 2021 study, \$562 – \$3,319 per ton, the external costs for FY2021 will exceed the value of the logs by \$2,195 – \$13,775 million. These numbers indicate it would be reasonable to expect that the climate-related, external costs will be at least 10.6 times the value of the logs and, perhaps, 84.5 times the value of the logs.<sup>8</sup>

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<sup>8</sup> The actual costs will be larger insofar as, despite all the climate-related research completed to date, none of the available methods fully incorporates all the expected costs resulting from CO<sub>2</sub> emissions. For example, they do not yet fully account for the costs associated with ocean acidification or for the potentially catastrophic costs expected to materialize if global warming causes ocean currents or other natural systems to cross so-called tipping points such that they no longer function as they have for millions of years.



These conclusions are supported by more than 11,000 scientists who warned in 2019 that we now are facing a climate emergency that threatens human existence:

“[W]e declare, with more than 11,000 scientist signatories from around the world, clearly and unequivocally that planet Earth is facing a climate emergency. ... The climate crisis has arrived and is accelerating faster than most scientists expected.... It is more severe than anticipated, threatening natural ecosystems and the fate of humanity....”<sup>9</sup>

In 2021, almost 14,000 scientists expanded the warning, calling for “immediate, transformative action to slow and halt catastrophic trends.”<sup>10</sup>

Given these warnings, it appears that DNR will continue to exacerbate the climate crisis—with climate-related costs far exceeding the value of the logs produced—unless it implements

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<sup>9</sup> Ripple, W.J., et al. 2019. [World Scientists’ Warning of a Climate Emergency](https://academic.oup.com/bioscience/article/70/1/8/5610806).  
<https://academic.oup.com/bioscience/article/70/1/8/5610806>.

<sup>10</sup> Ripple, W.J. 2021. [World Scientists Warn of a Climate Emergency](https://academic.oup.com/bioscience/advance-article/doi/10.1093/biosci/biab079/6325731).  
<https://academic.oup.com/bioscience/advance-article/doi/10.1093/biosci/biab079/6325731>.

transformative changes to reduce or eliminate CO<sub>2</sub> emissions from its timber- production program as quickly as possible.

Another method to quantify external costs of climate change is to consider future costs imposed on children. To help in its deliberations in a lawsuit seeking to halt expansion of a coal mine, a court in Australia asked an independent expert witness to describe the costs that foreseeable changes in climate will impose on the country's children over their lifetime. The expert looked at just three of the many types of climate-related costs: (1) reductions in home values resulting from increased probability of wildfires and other risks, (2) reductions in earnings as workers and farmers experience lower productivity in response to more intense heatwaves and other climate impacts, and (3) negative health impacts resulting from higher temperatures. The analysis found that each of today's children will experience costs of about \$126,000 over their lifetime due to these impacts.<sup>11</sup>

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<sup>11</sup> Mallon, K. 2020. [Independent Expert Report by Dr. Karl Mallon](https://equitygenerationlawyers.com/wp/wp-content/uploads/2021/05/201209-Expert-report-of-Dr-Karl-Mallon). <https://equitygenerationlawyers.com/wp/wp-content/uploads/2021/05/201209-Expert-report-of-Dr->

The court declared that, although withholding governmental approval for the mine, by itself, would not free today's children from all these costs, it would be consistent with the government's obligation to protect children from climate-related harms. One, it would ensure that the incremental increases in CO<sub>2</sub> emissions, which would result if government approved the mine, will not intensify the climate harms today's children will experience from emissions elsewhere. Two, it might show the way and facilitate taking other appropriate actions to reduce CO<sub>2</sub> emissions that otherwise would harm today's children.<sup>12</sup>

Similar reasoning applies to DNR's timber-production program. If DNR were to markedly curtail or eliminate the

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Mallon.pdf. (Amount shown in U.S. dollars, equivalent to the original estimate in Australian dollars.)

<sup>12</sup> Readfern, G. 2021. [Australian Government Must Protect Young People from Climate Crisis Harm, Court Declares](https://www.theguardian.com/environment/2021/jul/08/australian-government-must-protect-young-people-from-climate-crisis-harm-court-declares). <https://www.theguardian.com/environment/2021/jul/08/australian-government-must-protect-young-people-from-climate-crisis-harm-court-declares>.

program, it would decrease or eliminate the program's incremental CO<sub>2</sub> emissions, and thereby not intensify the climate harms today's children will experience from emissions elsewhere. In addition, significant curtailment or elimination of the program and its emissions may facilitate similar actions by others.

**2. Timber production generates external costs by contributing to the crisis in biodiversity and ecosystems.**

The worldwide loss of biodiversity has received much less attention than climate, but it is also severe and existential to human life as we know it.<sup>13</sup> Evidence for the harms associated with loss of biodiversity and ecosystems has emerged from

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<sup>13</sup> A just-published peer-reviewed report from a panel of 50 of the world's leading biodiversity and climate experts states: "Biodiversity loss and climate change are both driven by human economic activities and mutually reinforce each other. **Neither will be successfully resolved unless both are tackled together.**" [Bold emphasis added.] UN Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES): [Tackling Biodiversity & Climate Crises Together and Their Combined Social Impacts](https://www.un.org/sustainabledevelopment/blog/2021/06/tackling-biodiversity-climate-crises-together-and-their-combined-social-impacts/). <https://www.un.org/sustainabledevelopment/blog/2021/06/tackling-biodiversity-climate-crises-together-and-their-combined-social-impacts/>.

research conducted and compiled by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which stands parallel to the comparable institution, the Intergovernmental Panel on Climate Change (IPCC).<sup>14</sup>

More than one-half of the economic activity measured by conventional indicators, such as the world's gross domestic product (GDP), is dependent on ecosystem services from nature.<sup>15</sup> Globally, about one-third of the world's forest area has been destroyed, more than 85 percent of wetlands have been lost, one-third of the topsoil has been degraded, freshwater species and vertebrate species have experienced population declines of 83 percent and 60 percent, respectively, since 1970. A major

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<sup>14</sup> *Id.*

<sup>15</sup> Support for the facts in this paragraph come from World Economic Forum. 2020. [Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy](http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf). [http://www3.weforum.org/docs/WEF\\_New\\_Nature\\_Economy\\_Report\\_2020.pdf](http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf).

driver of these losses and trends has been the industrial exploitation of ecosystems to produce wood products and other materials.

Industrial timber production in Washington and on trust lands imposes negative impacts on biodiversity and ecosystems. Indeed, DNR acknowledged that its forestry causes harm to threatened and endangered species when it sought and obtained a permit from the U.S. Fish and Wildlife Service and National Marine Fisheries Service authorizing continued imposition of such harm. DNR also has conceded the importance of ecosystem services derived from forests and the potential for a business-as-usual management approach to diminish these services and provoke a crisis: “Historically, economic systems have not fairly accounted for all the goods and services from nature on which we fundamentally depend. Failure to adequately account for the

benefits of nature carries with it the risk of ignoring their deterioration and loss, until a crisis occurs.”<sup>16</sup>

Many of the negative impacts on biodiversity and ecosystems follow from practices, such as logging, which removes the majority of forest stands on a parcel and replaces them with single-aged stands of conifers (referred to as “regeneration harvest” or “variable retention harvest,” but commonly known as clearcut logging), a common feature of industrial timber production in this region.

For example, clearcut logging in uplands has negative impacts on nature by reducing the flow of streams in late summer and raising the water temperature.<sup>17</sup> Negative impacts on

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<sup>16</sup> DNR. 2012. [Forest Watershed Ecosystem Services](https://file.dnr.wa.gov/publications/frc_watershed_ecosystem_services.pdf).  
[https://file.dnr.wa.gov/publications/frc\\_watershed\\_ecosystem\\_services.pdf](https://file.dnr.wa.gov/publications/frc_watershed_ecosystem_services.pdf).

<sup>17</sup> Perry, T.P., and J.A. Jones. 2017. [Summer Streamflow Deficits from Regenerating Douglas-fir Forest in the Pacific Northwest, USA](https://www.researchgate.net/publication/307626760_Summer_streamflow_deficits_from_regenerating_Douglas-fir_forest_in_the_Pacific_Northwest_USA_Summer_streamflow_deficits_from_regenerating_Douglas-fir_forest);  
[https://www.researchgate.net/publication/307626760\\_Summer\\_streamflow\\_deficits\\_from\\_regenerating\\_Douglas-fir\\_forest\\_in\\_the\\_Pacific\\_Northwest\\_USA\\_Summer\\_streamflow\\_deficits\\_from\\_regenerating\\_Douglas-fir\\_forest](https://www.researchgate.net/publication/307626760_Summer_streamflow_deficits_from_regenerating_Douglas-fir_forest_in_the_Pacific_Northwest_USA_Summer_streamflow_deficits_from_regenerating_Douglas-fir_forest) and Oregon

streamflows can play a role in reducing populations of salmon and other species that depend on cold water and increase the cost of restoring these populations to higher levels.<sup>18</sup>

A 2009 analysis by a team of regional economists estimated that anticipated declines in the state's salmon populations resulting from climate change would impose costs of \$175 – \$640 per household in Washington per year.<sup>19</sup> Timber

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State University. 2011. [Study Outlines Stream Temperature Changes Following Timber Harvests](https://today.oregonstate.edu/archives/2011/sep/study-outlines-stream-temperature-changes-following-oregon-timber-harvests).  
<https://today.oregonstate.edu/archives/2011/sep/study-outlines-stream-temperature-changes-following-oregon-timber-harvests>. (Referring to Groom, J.D. 2013. Stream Temperature Responses to Timber Harvest and Best Management Practices.)

<sup>18</sup> National Marine Fisheries Service, West Coast Region. 2016. [Final ESA Recovery Plan for Oregon Coast Coho Salmon \(\*Oncorhynchus kisutch\*\)](https://www.beaverinstitute.org/wp-content/uploads/2017/08/NMFS-ORCohoRecoveryPlan2016.pdf).  
<https://www.beaverinstitute.org/wp-content/uploads/2017/08/NMFS-ORCohoRecoveryPlan2016.pdf>.

<sup>19</sup> Niemi, E. K. Baird, W. Barnes, and others. 2009. [An Overview of Potential Economic Costs to Washington of a Business-As-Usual Approach to Climate Change](https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/10719/economicreport_washington.pdf?sequence=1&isAllowed=y).  
[https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/10719/economicreport\\_washington.pdf?sequence=1&isAllowed=y](https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/10719/economicreport_washington.pdf?sequence=1&isAllowed=y).



production on trust lands contributes to the risk that these costs will fully materialize.

Other negative impacts on biodiversity and ecosystems also impose external costs. Smoke from burning post-logging slash can harm the health of humans, livestock, and wildlife, for example. Clearcuts and forest roads established to support timber production can become precursors for landslides. Logging of large, old trees degrades habitat for northern spotted owls, marbled murrelets, and other species dependent on these trees. Using chemicals to kill the growth of competing vegetation can degrade biological diversity. Each of these actions, and others that comprise biodiversity and ecosystems' ability to provide services, generate external costs.

Global efforts to quantify the external costs from negative impacts on biodiversity and ecosystem services have only just begun. The preliminary evidence, however, suggests such costs are significant. For example, the loss of biodiversity and degradation of ecosystems can contribute to the emergence of

devastating diseases, the degradation of forest wetlands can diminish their ability to retard, even arrest wildfires, and industrial modification of ecosystems can diminish soils and degrade their productivity.<sup>20</sup>

A recent review of global research, for example, reached these conclusions:

Our analysis shows that both conservation and ecological restoration bring considerable net benefits in terms of public goods and common pool resources, regardless of the habitat or type of ecosystem state change being considered. ... [O]ur findings do suggest that, within the broad habitat and geographic range present in our data, **we have typically passed the point where the benefits of further change from nature towards human-modified uses exceed the costs to society.**<sup>21</sup> [bold emphasis added]

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<sup>20</sup> UN Environment Programme. 2021. [Making Peace with Nature: A Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies, Executive Summary](https://www.unep.org/resources/making-peace-nature). <https://www.unep.org/resources/making-peace-nature>.

<sup>21</sup> Bradbury, R.B., S.H.M. Butchart, B. Fisher, and others. 2021. [The Economic Consequences of Conserving or Restoring Sites for Nature](https://www.nature.com/articles/s41893-021-00692-9). <https://www.nature.com/articles/s41893-021-00692-9>.

DNR confirms this conclusion. For example, after comparing two alternatives—one that would allow logging to proceed, and another that would restrict logging to protect potential nesting sites for northern spotted owls—DNR concluded that the benefits of protecting the habitat are 2–5 times the benefits from logging.<sup>22</sup>

The biodiversity/ecosystem-related external costs from timber production in FY2021 are likely at least as large as the benefits from these actions, *i.e.*, the value of the logs produced, which DNR has estimated will be \$165 million. DNR’s findings specific to northern spotted owls, described in the previous paragraph, suggests that the biodiversity/ecosystem-related external costs could be 5 times greater, or \$825 million.

**B. Industrial Logging Degrades Trust Resources Over Time.**

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<sup>22</sup> Krug, D., DNR, 2007. [Preliminary Economic Analysis: Forest Practices Rulemaking Affecting Northern Spotted Owl Conservation](https://www.dnr.wa.gov/Publications/fp_rulemkg_nsosc-pr_econ-prelim_200710.pdf).  
[https://www.dnr.wa.gov/Publications/fp\\_rulemkg\\_nsosc-pr\\_econ-prelim\\_200710.pdf](https://www.dnr.wa.gov/Publications/fp_rulemkg_nsosc-pr_econ-prelim_200710.pdf).

Continued timber production likely will have negative impacts on the future value of trust resources, retarding growth in, or even causing declines in the value of these resources. Continued timber production, for example, likely will increase the risk of wildfire on trust lands, slow forest growth, degrade the quantity and quality of streams on and below trust lands, and contribute to the loss of habitat for salmon and other species. Managing trust lands in the future to produce timber likely will yield markedly lower returns than would be realized by managing them for conservation and restoration.

DNR's data show that the stumpage price of logs has exhibited long-term decline since FY1995. So, too, has the net revenue generated from the lands, especially in real terms, i.e., adjusted for inflation.<sup>23</sup> Looking forward, DNR currently

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<sup>23</sup> Ohlson-Kiehn, K., L. Anderson, A. Brodie, and A. Hayes. 2021. [Trust land Performance: Charting a Course for the Future](https://www.dnr.wa.gov/publications/tlpa_wsac_presentation.pdf).  
[https://www.dnr.wa.gov/publications/tlpa\\_wsac\\_presentation.pdf](https://www.dnr.wa.gov/publications/tlpa_wsac_presentation.pdf)

projects that the volume of timber removed from trust lands will decline even without accounting for the impacts of the climate crisis and the biodiversity/ecosystem crisis.<sup>24</sup>

A recent assessment, prepared for DNR, found that the financial rate of return for DNR's timber-production program is less than 6 percent.<sup>25</sup> This means that the net annual revenues from the timber-production program are less than 6 percent of the underlying value of the forestland assets. This rate of return belies any belief that timber-production on the trust lands is somehow especially valuable, for it resembles the low rates of return exhibited by timber production in countries around the world.<sup>26, 27</sup>

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<sup>24</sup> Deloitte. 2020. [Trust Land Performance Assessment](https://www.dnr.wa.gov/TLPA). <https://www.dnr.wa.gov/TLPA>.

<sup>25</sup> *Id.*

<sup>26</sup> Cabbage, F., B. Kanieski, R. Rubilar, and others. 2020. [Global timber investments, 2005 to 2017](https://www.srs.fs.usda.gov/pubs/59400). <https://www.srs.fs.usda.gov/pubs/59400>.

<sup>27</sup> HM Treasury. 2021. [The Economics of Biodiversity: The Dasgupta Review](#).

In other words, nature cannot sustain past and current levels of production of timber and other materials. The degradation is worldwide, so there is no opportunity for an industry to exhaust the extraction of materials in one location, then move to another for higher levels of productivity. Insofar as these global relationships apply to the trust lands, it is reasonable to anticipate that the rate of return from timber production on them will remain stagnant or, more likely, decline.

Research locally confirms this conclusion. University of Washington climate researchers have long recognized that increases in atmospheric CO<sub>2</sub> are expected to have these impacts:

Past studies have shown the overwhelming importance of the summer drought and extreme plant moisture stress on the distribution of tree species and productivity of forest ecosystems in the Pacific Northwest. It is highly likely, therefore, that climatic changes which 1) increase the length of the summer moisture deficit, 2) increase the intensity of the summer moisture deficit, or 3) increase the

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<sup>27</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/957291/Dasgupta\\_Review\\_-\\_Full\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957291/Dasgupta_Review_-_Full_Report.pdf).

frequency of multiple summer droughts—or any combination of the three—**will result in a reduction in forest cover and biomass and in loss of species at the dry end of their ranges. ...** Consequently, even with increased total annual precipitation or increased WUE [water use efficiency], **any climatic changes (such as reduced summer precipitation or increased summer temperature) that result in a net increase in soil and plant moisture deficits are likely to result in increased physiological stress and reduced productivity.**<sup>28</sup> [Citations omitted. Bold emphasis added.]

In sum, with continued timber production, the productivity and value of these resources will likely decline. It is reasonable, therefore, to ask if a greater emphasis on conservation and restoration would improve outcomes. DNR has not quantified the rate of return for these activities, but there are strong reasons to conclude that they generally will outperform the low rate of return from continued production of timber. A study

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<sup>28</sup> University of Washington, JSIAO Climate Impacts Group. 1999. [Impacts of Climate Variability and Change in the Pacific Northwest](https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/38335/1999-2.pdf?sequence=1&isAllowed=y).  
<https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/38335/1999-2.pdf?sequence=1&isAllowed=y>.

commissioned by the UK government shows that investments in conservation and restoration typically yield a rate of return greater than 19 percent, almost four times greater than the rate of return on timber production and other forms of resource exploitation. This estimate of the superior performance of conservation and restoration is consistent with the research, described above, that found “both conservation and ecological restoration bring considerable net benefit.”<sup>29</sup>

### **C. A More Holistic Management Approach Can Bolster Jobs and Rural Economies.**

For decades, the timber industry has destabilized and depressed local economies by eliminating jobs and contributing to unhealthy social conditions in local communities. For example, Washington’s mining and logging industry and wood processing industry have eliminated jobs throughout the past 30 years,

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<sup>29</sup> Bradbury, R.B., S.H.M. Butchart, B. Fisher, and others. 2021. [The Economic Consequences of Conserving or Restoring Sites for Nature](https://www.nature.com/articles/s41893-021-00692-9). <https://www.nature.com/articles/s41893-021-00692-9>.



averaging almost 450 jobs lost per year over the period.<sup>30</sup> Increases in prices as the nation pulls out of the initial COVID-related lockdowns are proving temporary, lending credence to predictions from the Washington State Employment Security Department, which anticipate that these downward trends will continue over the next decade.<sup>31</sup>

Evidence presented in the preceding section shows that log prices have been declining for decades. Facing this reality, the timber industry aggressively strives to cut costs, most notably by eliminating jobs. Strong downward pressure on jobs also accompanied the transition in log supply and technology. The large logs that were common when logging occurred in old-growth forests required far more workers to move and process

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<sup>30</sup> St. Louis Federal Reserve. 2021. [All Employees: Mining and Logging in Washington](#); and [All Employees: Durable Goods: Wood Products Manufacturing in Washington](#). <https://fred.stlouisfed.org/series/WANRMN>.

<sup>31</sup> Washington State Employment Security Department. 2021. [Projections](#). <https://esd.wa.gov/labormarketinfo/projections>.

than the much smaller and more uniform logs of today, which can be logged, moved, and processed largely by automated machines.

No reversal of these trends can be seen on the horizon. As the number of jobs declines, less of the income generated by logging and the conversion of logs into paper and wood products flows to workers and, through them, to local communities. Instead, this income leaves the local area and flows to the investors and managers of the industry's corporations.

The negative economic impacts of timber production extend beyond timber-industry workers to the communities where the industry and its workers reside. Extensive research has documented the industry's negative impacts on local communities. A summary of this research, compiled by the National Research Council, concluded that a higher concentration of timber-related activity "seemed to hurt rather

than help communities.”<sup>32</sup> Much of this “hurt” comes directly from the industry’s impacts on workers. Eliminating jobs in the timber industry, for example, can have ripple effects that increase unemployment and the incidence of families in poverty throughout the local community. These outcomes can diminish activity within the local economy, diminish tax revenues for local communities, and stimulate communities to divert resources from other programs to provide public services to the affected families. Note that, although the research underlying these findings comes from the 1990s, when logging on federal lands declined, most of the jobs eliminated occurred afterward and reflect industry’s protracted determination to reduce labor costs.

The negative relationship between timber and the social health of communities was reaffirmed recently by the Bureau of Land Management (BLM), which examined the relationship between log production and local economies. It found that the

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<sup>32</sup> National Research Council. 2000. [Environmental Issues in Pacific Northwest Forest Management](https://doi.org/10.17226/4983). <https://doi.org/10.17226/4983>.

timber industry is among the world's most volatile, and this volatility has negative spillover impacts on local communities. As a result, the BLM concluded that proposed increases in log production likely would destabilize, rather than stabilize, the economy of nearby rural communities.<sup>33</sup>

Research in Oregon provides some detail to the negative effects on local economies, by showing a strong statistical correlation between logging and negative economic indicators. Specifically, counties with more logging have lower median wages, and a higher percentage of the population lives in poverty.<sup>34</sup>

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<sup>33</sup> Bureau of Land Management, 2014. Final Environmental Impact Statement for the Proposed Resource Management Plan for Western Oregon, page 702. Portland, OR: USDI Bureau of Land Management, Oregon State Office.

<sup>34</sup> County harvest data courtesy of Oregon Department of Forestry. Poverty and median wage data are taken from the U.S. Census. *See* Talberth, J., 2017. Modernizing State Forest Practices Laws to Halt and Reverse Deforestation. West Linn, OR: Center for Sustainable Economy.

Substantial evidence indicates that the economic and social outlook could be different if DNR curtailed timber production and managed the trust lands with an emphasis on conservation and restoration. Some of this evidence comes from research conducted in Oregon, which found that proximity to conserved forestlands typically correlates with faster growth in community wealth. Specifically, communities within 10 miles of land designated for species protection “experienced higher growth in community wealth than communities more than 10 miles from...protected land, even among those that were dependent upon logging.”<sup>35</sup>

Two major factors underlie the likelihood that forest conservation would stimulate an increase in jobs and community prosperity. One is the outdoor recreation/tourism industry; the

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<sup>35</sup> Weber, Bruce, and Yong Chen. 2012. “[Federal Forest Policy and Community Prosperity in the Pacific Northwest](https://www.choicesmagazine.org/UserFiles/file/cmsarticle_208.pdf).” Choices. 27(1).  
[https://www.choicesmagazine.org/UserFiles/file/cmsarticle\\_208.pdf](https://www.choicesmagazine.org/UserFiles/file/cmsarticle_208.pdf).

other is the movement of families and businesses to communities with attractive amenities. The outdoor recreation/tourism industry is huge—nationally it is larger than the motor vehicle manufacturing industry, the motion picture industry, and many other economic heavyweights—and it has been growing doggedly and rapidly—about 5 percent annually between 2005 and 2011, a period that includes a major recession and contraction for most industries.<sup>36</sup> DNR might stimulate activity in this industry by managing forests to provide more recreational opportunities. Relative to timber, this industry can pay lower average wages. But, for many workers and families, an industry that can deliver 5 percent growth in jobs, even with lower wages, is preferable to one that promises more layoffs, higher unemployment, and greater social distress.

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<sup>36</sup> Outdoor Industry Association. 2021. [The Outdoor Recreation Economy](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5389204.pdf).  
[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5389204.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5389204.pdf).

Another economic driver is movement of workers, families, and businesses to communities with attractive amenities. New workers often have higher levels of skill and incomes, new families typically have higher incomes to spend in local shops, and new businesses generally have the ability to grow more rapidly than long-established businesses. All of these factors can contribute to a more robust and sustainable local economy, and can generate economic opportunities for the current residents of communities near trust lands, and provide resources to strengthen the support for schools, healthcare, and other services.

This is not a new phenomenon. In 1999, an economist with the USDA Economic Research Service, concluded:

Climate, topography, and water area are highly related to rural county population change over the past 25 years. A natural amenities index, derived and discussed here, captures much of this relationship. Average 1970-96 population change in nonmetropolitan counties was 1 percent among counties low on the natural amenities index and 120 percent among counties high on the index....

Employment change is also highly related to natural amenities.... The importance of particular amenities varies by region...people are attracted to the West for its varied topography.<sup>37</sup>

A more recent analysis concluded that, on average, counties with more public land protected from logging and other extractive activities enjoy increased economic performance. After statistically controlling for the influence of other factors, the researchers found that, on average, a western county with 10,000 additional acres of protected public land exhibited higher average per capita income (additional \$436 in 2010), faster growth in per capita income (additional \$237 for 1990-2010), and faster growth in non-labor per capita income (additional \$174 for 1990- 2010).<sup>38</sup>

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<sup>37</sup> McGranahan, D.A. 1999. [Natural Amenities Drive Population Change](https://www.ers.usda.gov/webdocs/publications/41047/13201_aer781.pdf?v=6164.7).  
[https://www.ers.usda.gov/webdocs/publications/41047/13201\\_aer781.pdf?v=6164.7](https://www.ers.usda.gov/webdocs/publications/41047/13201_aer781.pdf?v=6164.7).

<sup>38</sup> Rasker, R., Gude P.H., and Delorey, M., 2013. [The Effect of Protected Federal Lands on Economic Prosperity in the Non-Metropolitan West](#).



An even more recently completed review of this phenomenon found that it has been transforming the economies of communities across the West:

A major impetus for economic restructuring in the Western U.S. (hereafter, the West) has been amenity migration, a phenomenon in which people relocate to communities for physical and social amenities derived from an abundance of desired ecosystem services as opposed to simply following employment opportunities. These amenity migrants include footloose entrepreneurs, retirees, and people willing to trade income for a higher quality of life. ... [P]ublic lands have consistently been shown to play a role in attracting amenity migrants.”<sup>39</sup> [Citations omitted]

The last sentence of this text indicates that, by managing trust lands to produce attractive amenities, DNR could encourage significant economic restructuring, transitioning away from

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<sup>38</sup>[https://www.researchgate.net/publication/259532971\\_The\\_Effect\\_of\\_Protected\\_Federal\\_Lands\\_on\\_Economic\\_Prosperty\\_in\\_the\\_Non-metropolitan\\_West](https://www.researchgate.net/publication/259532971_The_Effect_of_Protected_Federal_Lands_on_Economic_Prosperty_in_the_Non-metropolitan_West).

<sup>39</sup> Hjerpe, E., A. Hussain, and T. Holmes. 2020. [Amenity Migration and Public Lands: Rise of the Protected Areas](https://www.srs.fs.usda.gov/pubs/ja/2020/ja_2020_holmes_003.pdf). [https://www.srs.fs.usda.gov/pubs/ja/2020/ja\\_2020\\_holmes\\_003.pdf](https://www.srs.fs.usda.gov/pubs/ja/2020/ja_2020_holmes_003.pdf).

extractive timber production and toward a service-based economy.

The evidence presented above shows that, if conservation and restoration activities can yield amenities attractive to potential in-migrants, recreationists, and tourists, the trust lands likely would become a powerful engine of economic development. This represents the economic realities of today's American rural West, where resource managers and communities that emphasize attracting talent and diverse investments have a far higher chance of enjoying prosperity and sustainable population than communities that prioritize resource production.

#### **IV. CONCLUSION**


The Court should conclude that continued logging on the State Trust Lands does not yield the benefit to "all the people" required by the State Constitution.

I certify that this brief contains 4,816 words, in compliance with RAP 18.17(c)(6).

Dated this 7<sup>th</sup> day of September, 2021.

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**September 07, 2021 - 2:42 PM**

**Transmittal Information**

**Filed with Court:** Supreme Court  
**Appellate Court Case Number:** 99183-9  
**Appellate Court Case Title:** Conservation Northwest et al. v. Commissioner of Public Lands et al.  
**Superior Court Case Number:** 20-2-01051-8

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**Comments:**

MOTION TO FILE CORRECTED AMICUS BRIEF ON BEHALF OF ERNEST G. NIEMI WITH CORRECTED AMICUS BRIEF ATTACHED.

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