

Chair Golden, Vice-Chair Girod, members of the Committee, for the record my name is Marina Richie. I am a freelance science/environmental writer and author. I live just south of Bend on an acre of ponderosa pine and pollinator garden almost adjacent to the Deschutes National Forest.

I am in strong support of SB 530 –Natural Climate Solutions. The bill is a win-win. It’s incentive-based, voluntary, and leverages historic levels of federal funding to directly support forest landowners, farmers, ranchers, and communities, while benefiting Oregon and the planet. We have little time to capture and store carbon and protect biodiversity—and nature is our low-hanging fruit.

The Inflation Reduction Act has \$30 billion in incentives for climate-smart agriculture, conservation, and sustainable forestry. The time is now—for funding, for climate, and for Oregon to lead the way nationally.

Natural climate solutions are ingenious, because nature is gifting us every day with free solutions—if we allow and encourage natural systems to do that job. In a time of great alarm over our future and sometimes a feeling of helplessness in a fast-warming world with not enough action, this bill is SO positive.

Natural climate solutions are critical for capturing and storing carbon as we also strive for net zero emissions. For example, rather than building expensive carbon capture devices, our trees are doing that for us—and storing the carbon too. The bigger and older the trees grow, the more carbon they store . The more forests that grow for longer rotations, the better they can cool the air, store water, hold soils, protect watersheds for drinking water, and be more resilient to wildfire too. I see so much potential in SB 530 for retaining larger trees on the landscape and letting more trees grow either in perpetuity or for longer rotations. Even in those rotations, keeping some big trees there to grow is critical for a healthier carbon-storing forest.

Intact forests support biodiversity and are better able to resist disease, drought, and wildfire as well. I'd like to expand a bit on a subject I write about frequently—native birds. Sadly, there are 2.9 billion fewer birds flying our skies of North America than in 1970—with losses in every ecosystem. I have interviewed scientists nationally and here at Oregon State University both on birds and on the ecosystem values of big trees and older forests . (Example:

<https://columbiainsight.org/the-secret-power-of-old-growth>)

Recent studies at the H.J Andrews Experimental Forest provide evidence that climate-sensitive migratory songbirds like the Hermit Warbler are benefiting from cooler microclimates unique to older forests and the insect diversity associated with multi-species, multi-aged forests. As climate warms, migratory songbirds are facing a mismatch in timing that can be deadly for raising broods of chicks that must be fed thousands of insects. Earlier and warmer springs mean earlier tree budding, leafing, and then hatching of insects, which peak in growth before songbird eggs hatch. But when there's high insect diversity, there will be longer periods of insect hatch and more choice. These forests are a buffer for people and wildlife alike. (See: <https://today.oregonstate.edu/news/characteristics-older-forests-can-buffer-effects-climate-change-some-bird-species>.)

That bird example illustrates the intricacy and ecological complexity, which is largely overlooked with simplified views of our forests, especially when treating them like a farm crop. I personally know forest landowners who want to do the right thing for wildlife and for climate storage. They are protecting standing dead trees that are so critical to woodpeckers and other wildlife, plus storing carbon. They are keeping big and older trees, and only logging selectively in ways that take into account diversity. But they need funding, guidance, and help. SB 530 will do that.

I'd also like to address the few comments I heard in the hearing about older and bigger trees and logging.

First, older and bigger trees do not take more water out of the land---it's the exact opposite. As Dr. David Mildrexler (systems ecologist with a PHD in Forest Ecosystems and Society at Oregon State University) explains so clearly in his Opinion Piece for the La Grande Observer (see: https://www.lagrandeobserver.com/opinion/columns/protecting-large-trees-key-to-healthy-forests-slowng-climate-change/article_81f99574-9fec-11ec-bde3-334a5c4cabc4.html):

“Large trees are crucial in ecosystem water and energy cycles. Large deeply rooted trees tap groundwater resources not available to shallow-rooted plants. During drier months roots lift deep soil water up to shallow, drier portions of soil and release it, sharing water to the ecosystem, including neighboring plants of different species. A study in old growth ponderosa pine found that during July and August this process accounted for approximately 35% of total daily water usage from the upper soil, adding weeks of water during drought. This allows the ecosystem to continue photosynthesis, storing more carbon, and cooling the forest canopy as water evaporates from foliage. Forest canopies can register summer surface temperatures more than 30°F cooler than adjacent non-forest cover types, and large trees are the engine of this work. The water released to the atmosphere contributes to downwind moisture content and rainfall. Intact forests with large trees are positively associated with cool summer temperatures, increased late-summer streamflow and clean surface water.”

Second, for a forest to be healthy and biodiverse, there must be standing dead trees for wildlife and carbon storage, and downed logs for holding carbon, cycling nutrients, and nurturing saplings. Intact forests stow away more than half their carbon as organic soil or in the standing and fallen trees that will become part of the rich humus. We need to look beyond short-sighted views that dead trees and burned trees are worthless. Keeping as many trees as possible on the land after a wildfire is critical for holding the soil, keeping the underground mycorrhizal network functioning, for carbon storage, and for the new trees to be healthy and thriving.

Third, the more we do to protect and facilitate growth of forests with high carbon-storing abilities, the better. A five-year study published in 2019

<https://terraweb.forestry.oregonstate.edu/sites/terraweb/files/Hudiburg%20et%20al%202019.pdf>) shows preserving western forests with high carbon-storing abilities would be the equivalent of halting six to eight years of burning fossil fuels in the region. If protected, those forests will keep on retrieving and storing carbon into the future.

In contrast, the number one source of carbon emissions from western forests is timber harvest at 66%, with fire only at 15%. Logging slash disrupts intact soils that then release carbon, as does transport, processing, and manufacturing. Those emissions counter any stored carbon benefit in wood products that also ended the once-living trees' potential.

Returning to Natural Climate Solutions, there's so much in SB 530 to love. The bill is thoughtful, well researched, based on science, sets us up perfectly for leveraging federal funding, and reflects more than a thousand Oregonians weighing in. Natural Climate Solutions will keep the Oregon I know and love green, climate-resilient, and beautiful—across farms, forests, marshes, and communities. Thank you.