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Do redwood trees have a place in the future of WA's forests? They're already here

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Philip Stielstra, president of the nonprofit PropagationNation, gives a tour of director of operations Bob Barnes' nursery, which grows coast redwoods and giant sequoias in Olympia. (Erika Schultz / The Seattle Times)

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By

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MASON COUNTY — The acre of coast redwood trees here was planted over three decades ago and has grown roughly twice as fast as its 130-year-old native neighbors of Douglas fir, hemlock and cedar trees.

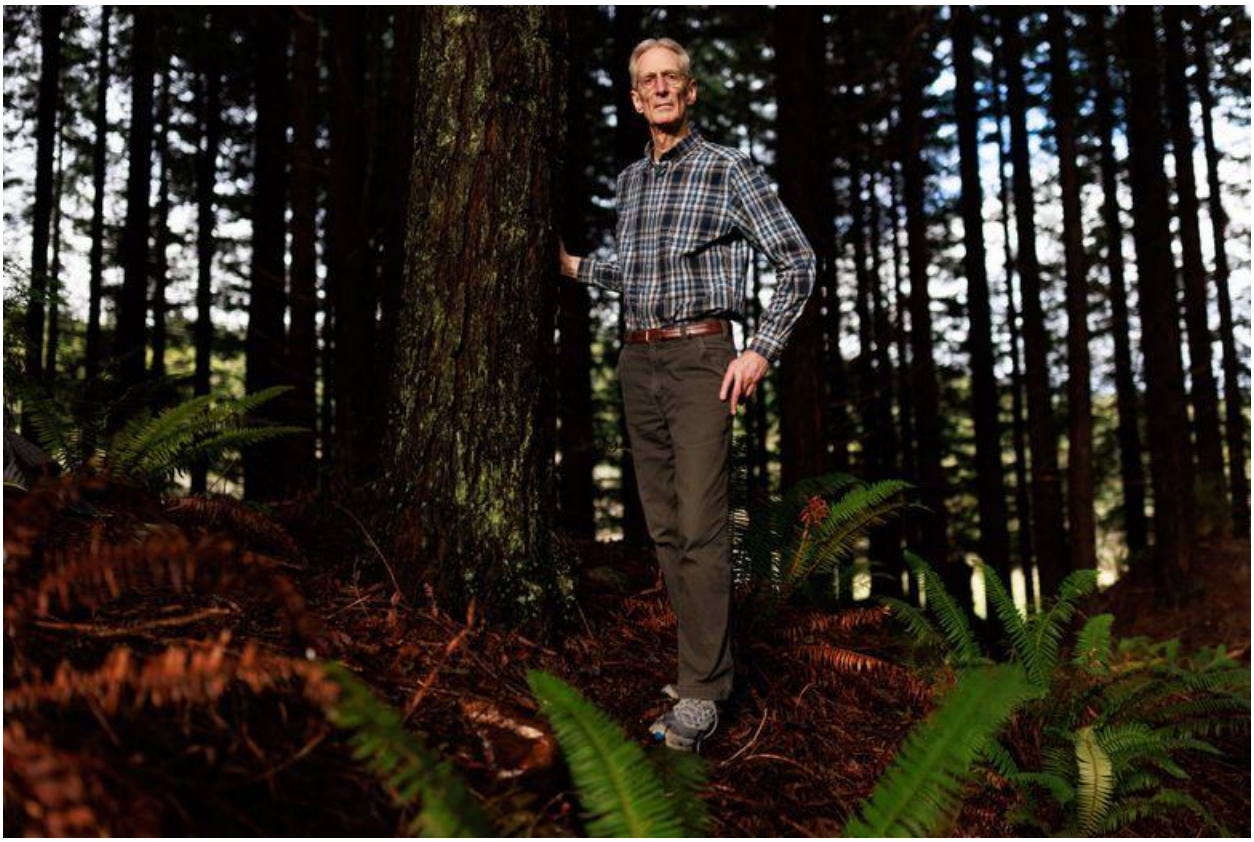
At 130 feet, the redwoods are on pace, maybe in another 30 years, to overtake the rest.

Their species is named Sequoia sempervirens, meaning always living, for good reason. They are among the oldest trees on Earth. Their thick, reddish-brown bark is resistant to fire, rot and insects, allowing water to be sent up their massive trunks for centuries. Unlike most other conifers, if you cut one down, new growths will sprout in a tangled knot, each branch wandering to become a leader.

Coast redwoods, planted in 1990 by Dave Robbins, grow at the Hama Hama Tree Farm on the north side of Hood Canal, seen this month. (Erika Schultz / The Seattle Times)

People travel to the trees' natural range in Northern California to stand next to these giants and peer toward the towering canopy. But this pocket of redwoods is not in California. They're on Washington state's Hood Canal, near the Hamma Hamma River, and they are far from the only ones in the Pacific Northwest.

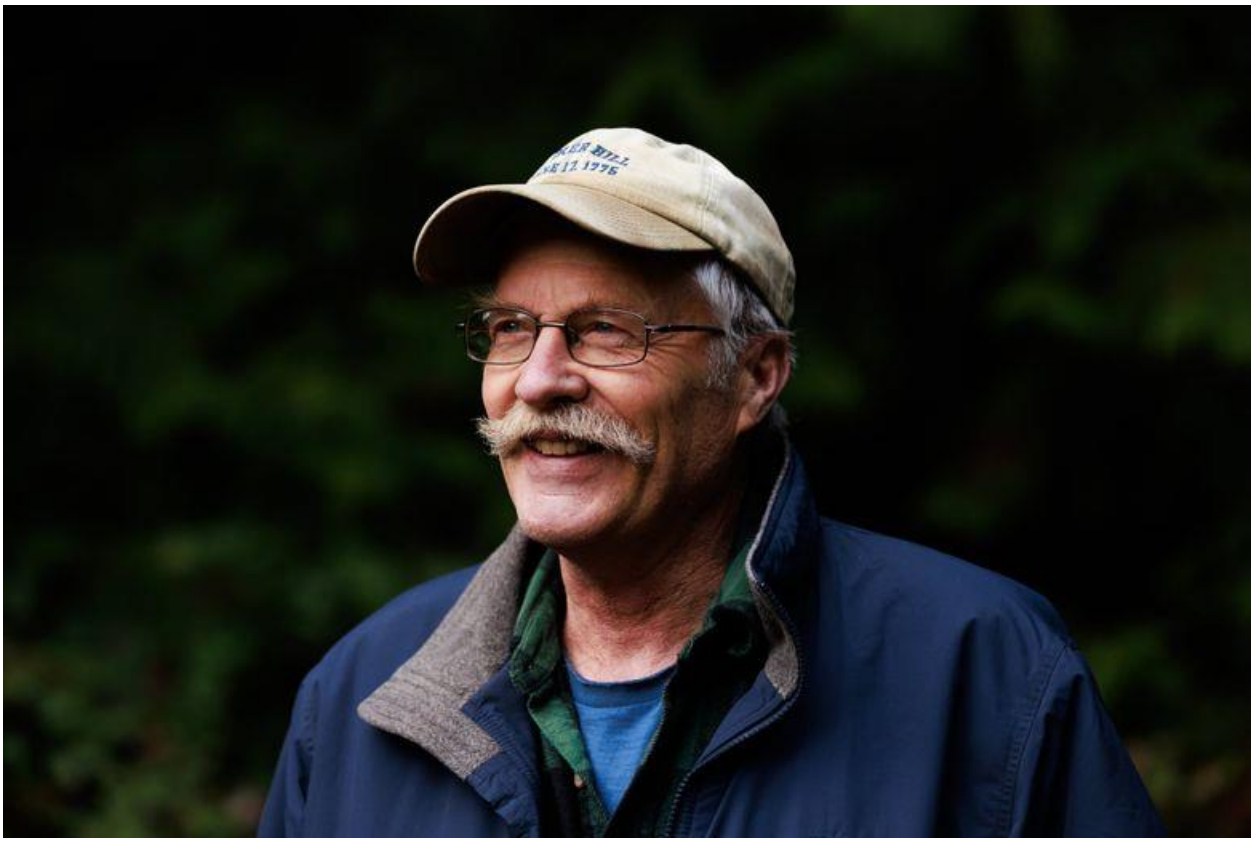
If you know where to look, redwoods can be found across Washington and Oregon. In Seattle, coast redwoods and giant sequoias — another species commonly called redwoods — can be found facing Husky Stadium, in Laurelhurst Park, in the Washington Park Arboretum and even in the front lawn of a West Seattle home. Some tree farmers on small areas of land have also started growing redwoods for commercial logging.



Philip Stielstra, president of the nonprofit PropagationNation, stands in a grove of coast redwoods, planted in 1990, at the Hama Hama Tree Farm on the north side of Hood Canal. (Erika Schultz / The Seattle Times)

Philip Stielstra, a 77-year-old former Boeing consultant, has visited the stand of redwoods on Hood Canal many times with Dave Robbins, the former manager of the Hama Hama Co., who planted the trees as a sort of

experiment. Stielstra's organization, PropagationNation, is dedicated to a mission of "painting the Pacific Northwest redwood."



Dave Robbins, former manager of the Hama Hama Tree Farm, next to the grove of coast redwoods he planted in 1990 at the tree farm on the north side of Hood Canal. (Erika Schultz / The Seattle Times)

As climate change threatens Washington and Oregon's forests with wildfire, drought and disease, Stielstra sees coast redwoods — with their immortal qualities and fast ability to soak up carbon — playing a key role in the future of the Northwest's forests, from industrial tree plantations to city parks to restored habitat.

At least 15 native Pacific Northwest tree species — including the Western red cedar — have experienced growth declines and die-offs in recent years, according to nonprofit news outlet Columbia Insight. Many of these effects have been linked to drought and rising temperatures.

Since 2016, PropagationNation has sold or given away nearly 10,000 coast redwoods or giant sequoias to city parks, conservation districts, tribes and private citizens in Washington. Driving between Tacoma and Olympia on Interstate 5, Stielstra can point out the shape of giant sequoias, "upside

down ice cream cones." Name a city around Puget Sound and chances are Stielstra has helped plant one there.

Philip Stielstra, president of the nonprofit PropagationNation, touches giant sequoia saplings growing at PropagationNation director of operations Bob Barnes' nursery in Olympia. PropagationNation hopes to distribute a million coast redwoods and giant sequoias per year around the Pacific Northwest by 2027. (Erika Schultz / The Seattle Times)

No one knows how this redwood "experiment" might turn out, since no one has done anything like this before, he said, but time for action on climate change is running out and there's enough evidence that it is a good bet.

"We are just trying to be a spearhead of saying, 'We're going to do this whether we have approval from any appointed body or not,' " he said.

Washington plants, grows and chops down forests to generate revenue. State Department of Natural Resources forest geneticist Jeff DeBell said the agency's preference is to keep planting the trees other plants and animals are already used to. There are other ways to mitigate climate change's effect on working forests, he said.

“When we plant trees, we’re going to try to stick with species that already occurred here as long as we can, and one of the important reasons for that is that the forest isn’t just trees,” he said.

This planting season, PropagationNation has scaled up and aims to sell 12,500 seedlings — though Stielstra’s goal is for nothing short of a movement. He eventually wants a million redwoods planted a year across the Pacific Northwest, ideally by government agencies and timber companies alike. More than 90 million trees are planted in Washington and Oregon each year, according to industry estimates. Stielstra asks, why can’t 1% of those be redwoods?

Coast redwoods, planted in 1990 by Dave Robbins, grow at the Hama Hama Tree Farm on north side of Hood Canal. (Erika Schultz / The Seattle Times)

Do redwoods belong in the Pacific Northwest?

Planting a species in a place it hasn’t been before presents a fundamental question: What might the ecological impacts be to the native plants and animals?

While established redwoods can resprout after being damaged by wind, fire or disease, they are not invasive in the way Himalayan blackberry and other nuisance species are. The trees need land scrubbed by fire or another disturbance to germinate seeds successfully, and the redwoods that have already existed in Washington for decades have grown quietly to little concern.

Determining whether redwoods are native to the Pacific Northwest is a matter of time scale. Since European settlers arrived in North America, coast redwoods have been primarily found between southwest Oregon and central California, and giant sequoias, which grow better in drier, sunnier places, were found inland along the western slope of the Sierra Nevada.

Giant sequoia saplings grow at PropagationNation director of operations Bob Barnes' nursery in Olympia this month. PropagationNation hopes to distribute 1 million coast redwoods and giant sequoias per year around the Pacific Northwest by 2027. (Erika Schultz / The Seattle Times)

However, it's likely the plant's ancestral range before the last ice age was far broader, said Russell Kramer, an ecologist who has been hired by PropagationNation to write educational materials in the past. The fossil record shows signs of a redwood relative and the dawn redwood, a related species now mainly found in China, across the Intermountain West, specifically in Montana and Idaho, he said.

Though, to Kramer, the redwood's fossil record is somewhat irrelevant to questions around whether the plant can and should grow in Washington and also ignores the fact that humans have long been moving and transporting animals and plants to non-native environments, leading to both nuisance invasive species and agricultural successes.

A sign near coast redwoods, planted in 1990 by Dave Robbins, growing at the Hama Hama Tree Farm on the north side of Hood Canal. (Erika Schultz / The Seattle Times)

Nearly all the tree species of the Pacific Northwest are found growing alongside coast redwoods and giant sequoias, he said. Adding another species like the coast redwood with its decay-, fire- and disease-resistant properties would mean giving mixed-species forests another line of defense, Kramer said.

DeBell, the DNR forest geneticist, said while the agency is aware redwoods can grow successfully in the state, its preference is to stick to Douglas fir, which dominates the timber industry in the Pacific Northwest. The agency manages over 2 million acres of forests and plants between 5 million and 7 million trees a year.

Trees also provide habitat for other species from insects to small mammals, and while it's possible redwoods could be a suitable replacement, DeBell said the agency prefers continuity. Kramer also said where redwoods dominate or where they are planted densely, biodiversity tends to be lower because the species' resistance to decay makes it unappealing to herbivores and fungi.

Coast redwoods, planted in 1990 by Dave Robbins, grow at the Hama Hama Tree Farm on the north side of Hood Canal this month. (Erika Schultz / The Seattle Times)

DeBell said that he was unsure the coast redwoods — which come from a cool, moist and foggy part of California — would be the immediate choice for Washington's forest resiliency as the state warms up, as opposed to trees already adapted to drier conditions like the ponderosa pine, a Douglas fir accustomed to growing in a warmer climate, or even the giant sequoia.

"I don't have data to tell you how it's going to work out, but I'm not sure that's the intuitive choice," he said.

Traditionally, tree farmers choose Douglas fir seeds from a nearby source, DeBell said. But anticipating a hotter drier future, planters are starting to source seeds from farther south, he said. Just how much Washington's climate will change, and how far south seeds should be harvested, is unclear.

To shed light on that uncertainty, the U.S. Forest Service, DNR and other state agencies are growing Douglas fir on 18 West Coast sites. Each contains seeds sourced from 23 different environments across the three states.

One of these trial sites is at the University of Washington's Pack Forest, where Greg Ettl, an associate professor at UW's School of Environmental and Forest Sciences, has another ongoing study: comparing the growth of a coast redwood with that of a Douglas fir. While California already has an active timber industry growing and selling redwoods, and family tree farmers in the Pacific Northwest have a sense of how to grow a coast redwood successfully, the academic literature on growing them in Washington is sparse, he said.

Ettl is also studying how well redwood seedlings do in drought and under frost — both conditions that would be new for trees from the California coast. He is also looking to survey the coast redwoods and Douglas firs growing alongside each other across the state to compare their growth rates under different conditions and soil types.

A coast redwood sapling grows at PropagationNation director of operations Bob Barnes' nursery in Olympia. (Erika Schultz / The Seattle Times)

Coast redwoods are a promising tree, not only for their commercial appeal and speedy growth, he said. The species is shade tolerant, meaning tree farmers could continually grow younger stands beneath older ones while harvesting every few years or so. Tree farmers would also not have to replant after cutting one down since the species can resprout from its stump, he said.

In comparison, Douglas fir are less tolerant of shady conditions. In recent years, farmers have also seen more Douglas fir seedlings fail on well-drained and sunny slopes, Ettl said.

Stielstra concedes it's possible adding redwoods to the mix of trees found in the Pacific Northwest could have unintended consequences. But he argues that's possible with any experiment — and how will those changes compare with how climate change will remake the region?

"The clock is ticking," Stielstra said. "That's why our proposition is 'plant a tree.' It's the simplest thing to do."

Coast redwoods, planted in 1990 by Dave Robbins, grow at the Hama Hama Tree Farm on the north side of Hood Canal. (Erika Schultz / The Seattle Times)

Who else is experimenting with redwoods?

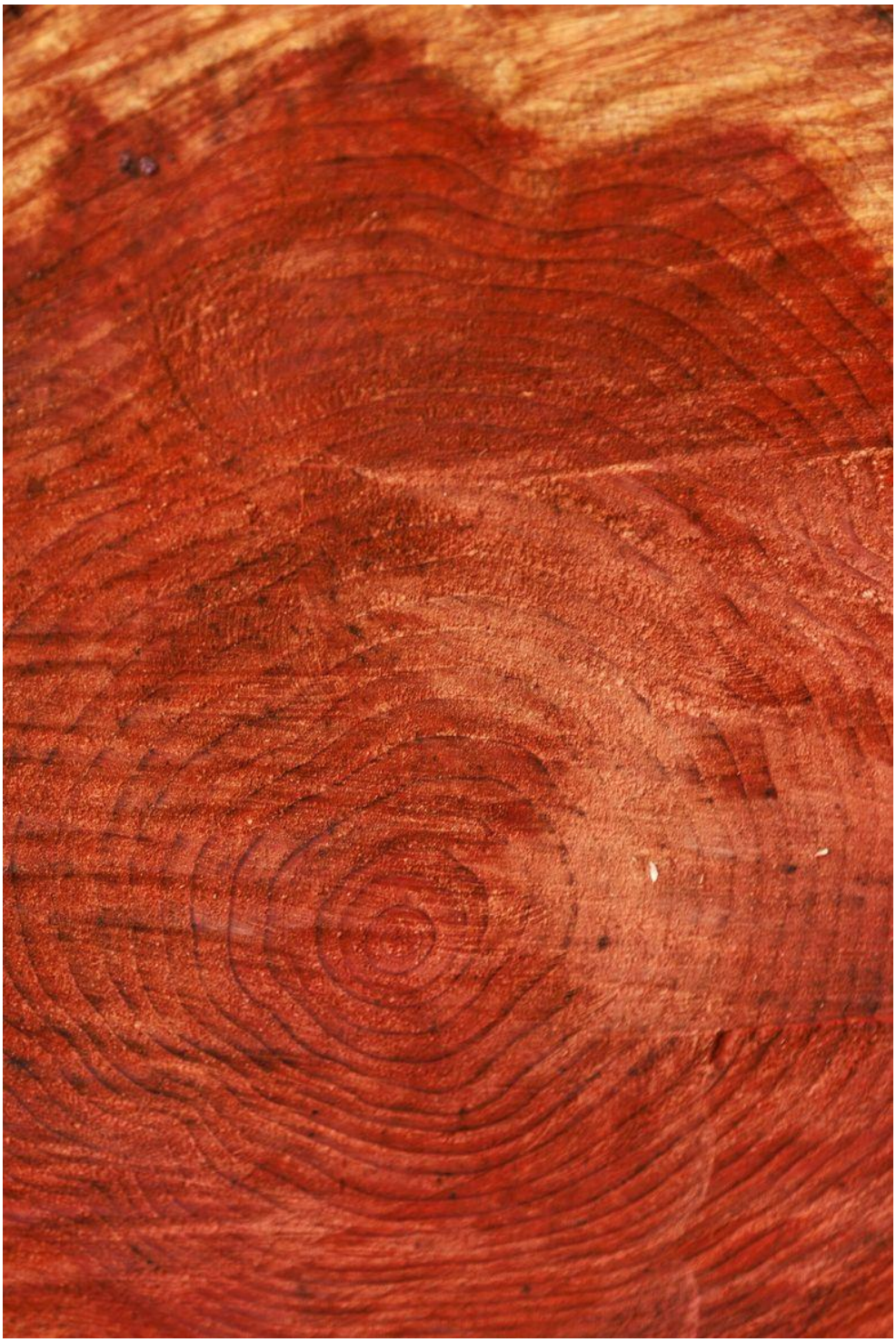
To tree farmer Terry Lamers, the coast redwood with its beautiful “straight as an arrow” form and small limbs is nothing short of an arboreal cash cow.

In his family-owned tree farm of just under 500 acres southwest of Salem, Ore., redwoods, which fetch a higher price than Douglas fir, have been the only species he has been planting for the last 10 years. His tests started the way they do for many family tree farmers, including Robbins: by planting several species on his property decades ago.

“Redwood is doing extremely well on every site that we’ve planted it,” he said. “North slopes, south slopes, east slopes, west slopes, the worst soil we’ve got, the best soil we’ve got. It has excelled everywhere.”

In Lamers’ experience, coast redwoods grow twice as fast as Douglas fir and surplus redwood seedlings have been easy to sell. With a portable saw mill, the redwood trunks cut beautifully, even when cut thinly at about a half-

inch thick, he said. It wasn't like other wood species that crack or twist after drying out, he said.



The rings of a coast redwood are seen at the Hama Hama Tree Farm on the north side of Hood Canal. (Erika Schultz / The Seattle Times)

Because the Pacific Northwest is Douglas fir country and growing coast redwoods is still a niche practice, many industrial mills do not accept redwood logs. It's not a problem for Lamers, who says the "ridiculous high price" on redwood lumber makes the inconvenience of milling it himself worth it, but it's enough of a wrinkle that many landowners are not willing to make the leap, he said.

At the Jamestown S'Klallam tribe on the Olympic Peninsula, Hilton Turnbull, the tribe's habitat biologist, is planting redwoods alongside species like Douglas fir, western hemlock and grand fir.

The Jamestown S'Klallam Tribe is planting redwoods among other species as part of a project restoring part of the Dungeness River's flood plain. (Courtesy of John Gussman, 2022)

The tribe is restoring a part of the Dungeness River's flood plain and creating more habitat for endangered salmon. Turnbull and other crew members have planted about 1% or 2% of the trees as coast redwoods and giant sequoia. He's hopeful they can grow more quickly into the large trees needed to create log jams in the river, slowing down water for the spawning salmon.

Over recent years, the river has warmed up, Turnbull said. The need for a salmon habitat resilient to climate change is greater than ever, he said.

“Climate change has kind of forced our hand,” he said “… Incorporating redwoods and sequoias is just a part of our strategy.”

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