Experimenting with Coast Redwood Timber Production in the Pacific Northwest

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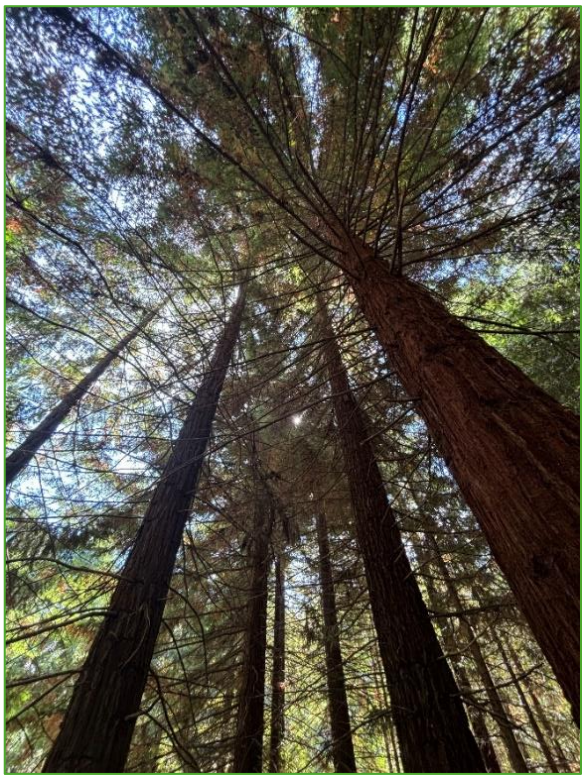

Coast Redwood canopy looking up from the forest floor at the Lamers family tree farm near Monmouth, OR

We arrived a bit early at the Lamers Forests 490-acre family tree farm near Monmouth, OR. Gathering around their shop making small talk, it was immediately clear that Terry Lamers' enthusiasm was to be a highlight of the day. Something we didn't know about Terry is that he is incredibly passionate about sharpening saw chains. Since I heat my home entirely with wood, I have a little experience with chainsaws. This year I have already cut, split, and stacked ten cords of firewood, enough to last about 3 years, but nowhere near the 18,000 cords that Lamers Forests u-cutters have cut on Lamers Forests property in the past 47 years. So of course, I was interested in how to get a saw chain sharp. Next thing you know Terry is demonstrating on his Silvey machines the easiest and best way to get a sharp chain and provide superior cutting in the woods.

That's how we started our Washington Farm Forestry Association private tour of Lamers Forests "experiment with coast redwoods" recently arranged by Bill Wamsley, fellow Lewis County chapter member. Being a small family tree farmer, I am increasingly concerned with the dieback I am seeing on our native forest trees as a direct result of recent years record temperatures and their associated "heat domes". One day while working in my newly planted timber trees, I had this depressing vision of my kids - 60 years in the future - with my grandchildren, at my current age, standing in this forest of dead trees wondering why papa/grandpa didn't incorporate species diversity in our timber plantings at Shady Grove in Onalaska, WA. In this vision, it was sad to think that my timber legacy could possibly just be a bunch of dead trees. Hence began my search for viable alternatives to our traditional timber species, ultimately leading me to coast redwood, PropagationNation, and the Lamers Family Forest.

Diversifying Our Timber Portfolio

Found in the northern coastal California and southern Oregon region, coast redwoods are known for their rapid growth and resilience. The Pacific Northwest, home to vast

and biodiverse forests, has long been associated with the timber industry. It should be noted that for timber production, in this article we are talking about the coast redwood species (*Sequoia sempervirens*) and not the giant sequoia (*Sequoiadendron giganteum*). While giant sequoia is an iconic large tree, it is commonly planted as a landscape tree and is not suited to commercial timber production.

Currently, coast redwoods do not naturally occur in the Pacific Northwest, except for a small population in the southwest corner of Oregon, having retreated during the last ice age. Recent efforts to re-introduce them in Oregon and Washington have shown compelling results, opening up opportunities for expanding the traditional California coast redwood timber market northward (*The Seattle Times, Jan 21, 2024*). Pioneers like Terry Lamers and his family have led the way, experimenting with coast redwood on various slopes and elevations on their 490-acre timber farm near Monmouth, Oregon.

Coast redwood harvested and milled by Terry Lamers from his family's trees. Note the 1/2" annual growth rings on this unfinished board.

But first we must see what coast redwood looks and feels like to understand its value and help convince us it's one of the reasons that it's a viable timber option for the west of the Cascades in Washington and Oregon. One thing in common with a lot of tree growers is the love of working with wood. Terry is no exception. Lamers Forest has a small bandsaw mill and a planer which they used to build a 40' long shelf to hold their small museum-quality chainsaw collection, (yes, it's a thing). He showed us samples of freshly milled coast redwood. It was almost magical how unexpectedly light the sample piece of lumber was! And the color was spectacular, even without a finish. The unique thing about coast redwood lumber is that, not only is it extremely light, but its strength-to-weight ratio may be unmatched by any other wood.

When it comes to building projects, few materials offer the combination of beauty, durability, and sustainability that coast redwood does. Known for its rich reddish-brown hue and unique characteristics, coast redwood lumber is an investment in quality. Whether for outdoor construction, fine woodworking, or high-end furniture, coast redwood stands out as one of the most prized and versatile woods available. What sets this lumber apart is its durability. Coast redwood is an ideal choice for projects that need to stand the test of time, particularly in outdoor environments. If you can get it, it's a superior product for building a deck, a fence, or even a garden structure, because coast redwood can withstand the elements far better than many other types of wood. In fact, the heartwood of the coast redwood tree contains natural chemicals that protect it from insects and fungal decay. This durability ensures that outdoor structures that incorporate

coast redwood require minimal maintenance and last for decades, even in harsh conditions. Western red cedar, a common alternative in the Pacific Northwest, doesn't match coast redwood in terms of longevity and resistance to rot. It should be noted that young coast redwood lumber may not exhibit these characteristics.

Photo credit:https://www.getredwood.com/blog/turn-your-deck-outdoor-oasis

Coast redwood's visual appeal is another reason it's so highly valued. The wood's rich, warm color and tight grain patterns make it a favorite for adding natural beauty to projects. Unlike many other woods that will fade, coast redwood maintains its natural beauty over time with minimal need for staining or painting. If unfinished, coast redwood will turn grey with exposure to sunlight and turn a blackish color in damp conditions. Coast redwood's straight grain makes it easy to work with, resulting in a smooth, elegant finish that's perfect for fine furniture, cabinetry, and interior paneling. Coast redwood's beauty and ease of use make it a go-to material for high-end homes and architectural projects. Terry suggests there might be an untapped high value market for coast redwood logs for early-adopter redwood timber growers like us who don't have access to local redwood mills.

Photo credit: Colonialconcepts.com

"The Experiment is Over"

But before we can get out in the woods and see the Lamers timber family experiments with coast redwoods, we need to hear the pitch from Terry. Coming from 36 years of experience growing coast redwood, 50 years of growing timber, and 44 years of experimenting with about 10 different potential timber species, we gather around and listen, intent on learning something new to take back to our tree farms.

This coast redwood was planted 19-months ago as an 11-12" plug seedling at the Lamers Forest family tree farm near Monmouth, OR. This site is at 570' elevation.

Terry starts with a FAQ handout he created for our field tour. I was reminded of a quote of Terry Lamers in an article I recently read, *to tree farmer Terry, the coast redwood with its beautiful "straight as an arrow" form and small limbs is nothing short of an arboreal cash cow* (*The Seattle Times, Jan 21, 2024*). Terry then begins to describe for us some things his family thinks make coast redwood standout as a superior timber reforestation species:

- Coast redwood grows fast, producing two times more timber volume/acre than Douglas fir in mixed stands of the same age class on the Lamers Forest property. Terry estimates the coast redwood also has produced up to eight times the biomass of western red cedar in his family forest's experimental mixed species stands. This fact is probably the most compelling argument for me to include coast redwood in all my future Shady Grove plantings in Lewis County, WA.
- Heat resistant. In 2021, the Lamers' forest recorded a record 117-degree summer temperature. In 2023 their family forest endured over 100 days with no measurable precipitation. Where Douglas fir needles turned red/brown and trees are now dead or dying, the coast redwoods they planted within the same stands are thriving and are showing no heat related damage.
- Minimal freeze damage. Where Douglas fir and other timber species died back from a recent extreme cold winter with sustained cold spells, the Lamers' family coast redwoods have not died at a rate greater than Douglas fir seedlings.
- Roots hold tight. Where heavy snow and ice loads uprooted and broke Douglas fir and other conifers, the coast redwood trunks just bent over and kept growing. The lateral branches on the bent over trunks assumed apical dominance and started growing tall and straight, like individual seedlings on a nurse log.
- Coast redwoods produce a clear bole and are self-pruning - lateral branches die and fall off the trunk as the tree grows fast, tall, and straight.
- No elk and/or deer browse on newly planted coast redwood seedlings. (Though the resident elk herd of over 100 do tend to "*stomp them to oblivion*" as they pass through young stands of coast redwoods at Lamers Forest tree farm).

- Laminated Root rot (*Phellinus weirii*) resistance and/or possible immunity – which means coast redwood can be planted in infected soils where Douglas fir, western hemlock, and western red cedar have died from this fungus - one of the most damaging root diseases of conifers in the Pacific Northwest.
- Coast redwood coppices, which means it will sprout from the roots once cut, therefore does not need to be replanted after commercial timber harvest - taking advantage of an established root system - resulting in faster second growth harvest cycles.
- Water doesn't seem to adversely affect seedlings – coast redwood can be successfully planted in heavy clay soils - and even directly planted in standing water! Eight months after planting some of the Lamers Forests' coast redwood seedlings are over three feet tall.

35-year-old, 112' tall, 26" diameter coast redwood planted at the Lamers family tree farm near Monmouth, OR

- Coast redwood is extremely shade tolerant.
- Coast redwood can be planted in riparian areas to buffer the inevitable loss of Oregon ash from future emerald ash borer infestations.
- There are a variety of applications for coast redwood lumber, including premier markets for log home/timber frame construction.
- Redwood is a stable light-weight wood, which in building construction translates to a high R-value for its use in siding applications. *(R-value is a measurement of how well insulation resists heat flow and is a key factor in determining the effectiveness of insulation. A higher R-value indicates better insulation performance and energy efficiency).*
- Even the young-aged coast redwood lumber has beautiful color.

"Coast redwood is tough. It is doing extremely well on every site that we've planted it," Terry says. *"North slopes, south slopes, east slopes, west slopes, the worst soil we've got, the best soil we've got. It has excelled everywhere on our tree farm, from 200' to nearly 600' elevation."*

Challenges to Establishing a Pacific Northwest Coast Redwood Timber Market

While the potential for coast redwood in the Pacific Northwest is significant, there are challenges to establishing a large-scale sustainable timber market. Coast redwood cultivation requires specific soil and climate conditions, which may limit where they can be planted. I suspect that the location that I am going to be planting my first 1000 coast redwoods on the north slope above my creek that is currently growing red alder, big leaf maple in an understory of sword fern and salmonberry, is a good indicator of prime coast redwood timber ground at Shady Grove. Coast redwood, unlike traditional timber species, do not go dormant, which can impact survival of newly planted seedlings. The ideal planting time at the Lamers Forest tree farm in Oregon is in mid-February to protect young seedlings from drying out in the field. Care should be taken with planting density to ensure that the trees grow well without developing large, undesirable limbs. With the correct spacing they will self-prune lateral branches as they are growing. Terry suggests planting coast redwood plugs on an 11' x 11' spacing, (360 trees per acre). Terry uses a battery powered drill with a modified 2" auger to plant coast redwood plugs, which he says is the easiest and fastest way to plant. I prefer to plant with my long-handled steel reinforced tree shovel or a hoe dad, but I am always willing to try a better method, so I purchased one of Terry's modified augers for myself.

Terry Lamers modified auger for planting 2" diameter plugs. Use with a battery-operated drill (a 9-amp hour battery will plant about 200 plugs).

Commercial log prices for all species vary from year to year and even seasonally due to market demand and sawlog availability. Terry indicated that in the past coast redwood lumber reached as high as $4,950 per thousand board feet compared to Douglas fir at the same time of $1,200 per thousand board feet. The current number of commercial mills in the Pacific Northwest interested in processing coast redwood logs is non-existent for good reason – the logs aren't here. Convincing local mills to process coast redwood timber requires a sustainable raw log supply to make it economical to process. When coast redwood timber comes into commercial production in the Pacific Northwest,

local mills will certainly adapt to the market demand for this high-quality, fast growing, multi-use lumber.

The Path Forward

For tree farmers and commercial timber growers looking to diversify markets, the argument for coast redwood in the Pacific Northwest is compelling. Early plantings indicate an ability for coast redwood to thrive in this region. Coast redwood offers a unique opportunity to diversify the region's timber economy, address climate concerns, and enhance the forestry industry for future generations. Coast redwood's rapid growth rate, disease and rot-resistant, and durable wood is highly valued for construction, outdoor projects, and fine woodworking in markets where it is readily available.

Terry Lamers in his family's tree farm in a coast redwood mixed stand planted with western red cedar (WRC). Note the size difference (smaller diameter tree on the front right is a WRC planted at the same time as the group of three larger diameter coast redwoods on the left).

Lewis County, Washington is one of the world's best timber growing regions. As climate change threatens forest ecosystems worldwide, the coast redwood stands as a symbol of resilience and hope. Adopting this species into the reforestation mix for the Pacific Northwest may be a smart choice to help diversify our regional timber economy. For the Lamers Forest tree farm "*the experiment is over*" – coast redwood has thrived on every site and planting strategy and dominates Terry's family's current reforestation efforts. His son Erik believes, that as a commercial timber species, "*Douglas fir is obsolete"* as he cuts dead and dying trees from his family's tree farm. The Lamers now only plant coast redwood and enthusiastically advise others to follow their lead. More test plots like the 20,000 coast redwoods that they have planted on 35-40 acres of the Lamers Forest tree farm will provide much needed forest practices information and bolster grower confidence in coast redwood's potential contribution as a sustainable commercial timber species mix for the Pacific Northwest.