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Coastal redwood, sequoia replace Douglas fir

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By Alex Féthière

Photo in the print edition: This was the second of the first two coast redwoods planted at Ocean Mountain Ranch on a remote hillside south of Port Orford, Oregon, in 2012. (Photo courtesy of Archangel Ancient Tree Archive)

Last week's column discussed the Archangel Ancient Tree Archive's project to transplant clones of genetically superior giant sequoias and coast redwoods around Puget Sound. Branch tips of millennia-old trees have been painstakingly rooted in a lab to start new trees, and these are being distributed throughout Western Washington.

The thinking behind this orbits climate change and carbon sequestration. If, as some scientists anticipate, the Douglas fir will eventually find this region inhospitable, other trees of similar value must take its place.

Assuming that regions continue to warm and suffer anomalous weather patterns, a northward migration of tree species and their symbionts is inevitable. Entire arrays of interrelated species might be moving up here.

Some grumble about the humans who were first in this exodus. Californian conditions that used to favor the giant sequoia and coast redwood have changed, just as our circumstances for the Douglas fir are in flux.

In hedging our bets we have to ask what use these trees have, and what will ease their transition into a new home. Fortunately, according to Michael Dolan of Onalaska's Burnt Ridge Nursery, giant sequoia and coast redwood will establish even in part shade.

Giant sequoia (*Sequoia sempervirens*) was once so valued for lumber that today only 176 square miles of old-growth forest exist, much of which is in patches. Without contiguity old-growth forest is like Micronesia: endangered tiny islands isolated by rising seas. Prosperity and diversity in such an imperiled archipelago is almost impossible.

Giant sequoia is able to regenerate and self-propagate so as to maintain stands of itself, possibly creating the foundations of a new old-growth forest. If carbon sequestration is your aim, plantations of giant sequoia are the world's most efficient, according to a study by Humboldt State University and the University of Washington.

This paper also found that “in wet, nutrient-rich habitats, old-growth sequoia forests yield more decay-resistant heartwood annually than any other vegetation.” If you’re planning to timber it, growing it in plantations with unlimited water and nutrients yields, unsurprisingly, “maximum wood production.” Unfortunately, this use of these trees outside of regenerative forestry is economically and logistically speculative.

Redwoods show promise for CLT (cross-laminated timber) and both trees have excellent decay resistance, but they don’t develop such resistance until they’re too old to interest loggers.

Mixing sequoia in with existing stands of Doug fir is a good idea because the heartwood of sequoia resists decay for centuries and supports a range of symbionts, like hemlocks or evergreen huckleberries sprouting from pockets of decay in it — much as the latter does from Western red cedar.

Burnt Ridge’s Dolan observes that the decay resistance of both trees, as with Western red cedar, develops only beyond the growth cycles used by the logging industry. If quick-yield rot-resistant wood is your aim, chestnuts are the best choice. We’ll return to them later.

Leaving a few giant sequoia in a stand of timbering trees provides a refuge for canopy biota that help the development of your next generation’s trees of interest. Happy critters might seem more Disney than practical, but consider that truffles growing in stands of Douglas fir improve growth rates and timber quality and that they are propagated by forest rodents. Never mind that these truffles are inherently valuable if you can find them!

Speaking of fungal associations that benefit trees, there are formulae of mycorrhizal inoculants that can be applied to provide the networks that help trees find water, obtain nutrients and possibly even communicate. If these take to their environment, they improve establishment and growth of trees, but this is controversial.

For now, suffice to say that Don Smith, volunteer at Archangel in Michigan, claims excellent results establishing giant sequoia and coast redwood with Great White’s catchily-named “PRPSGW04 100049823” Mycorrhizae. Good thing we’d be ordering that online and not asking for it in stores.

I will be using these trees to add diversity to distributions of big-leaf maple, Douglas fir, Western red cedar and hemlock. Since my plan includes oaks and chestnuts, these towering trees must be carefully placed.

To volunteer for planting contact Archangel Ancient Tree Archive on Facebook or email Dave Pearsall. [Email address given in the print edition.]

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