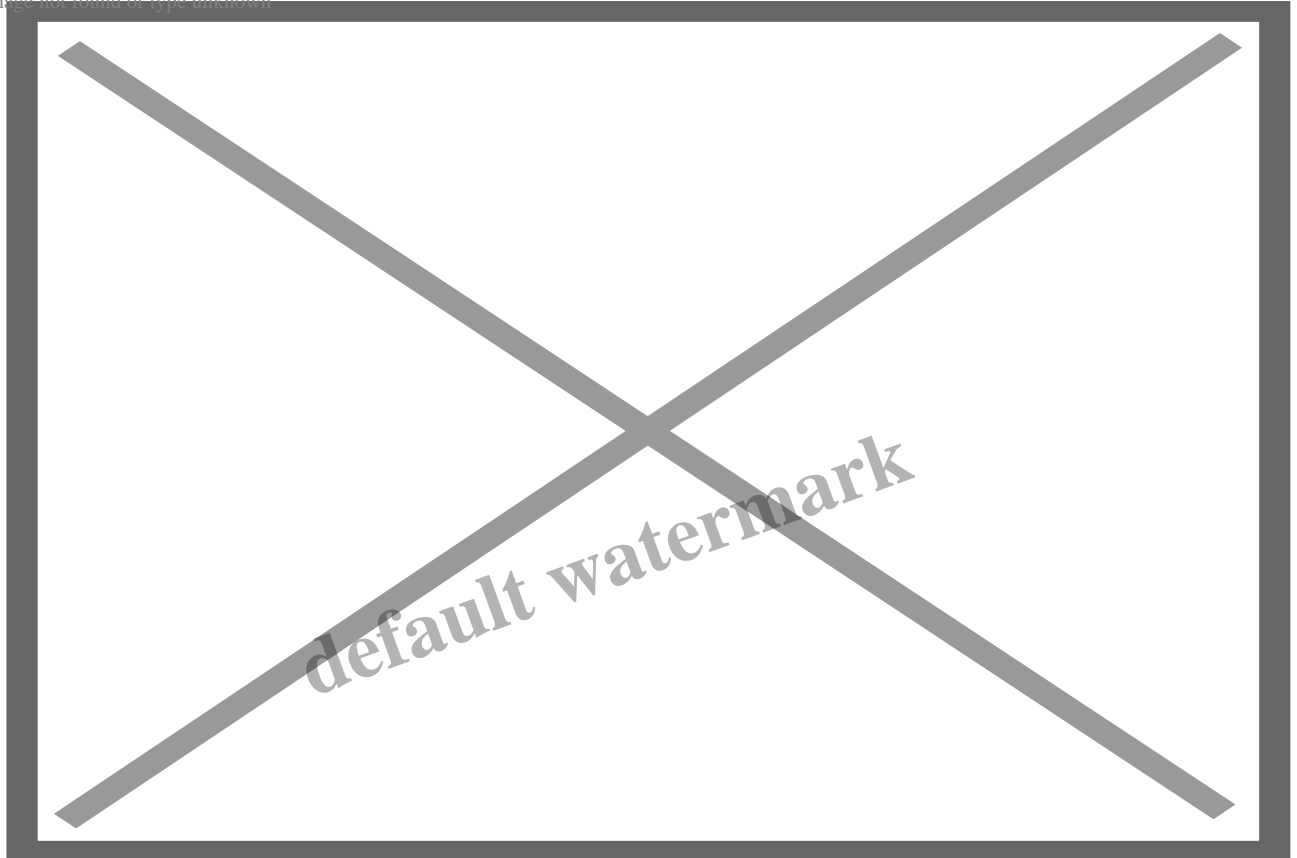


## Tall trees, tunnels and train robberies: recycling Redwood

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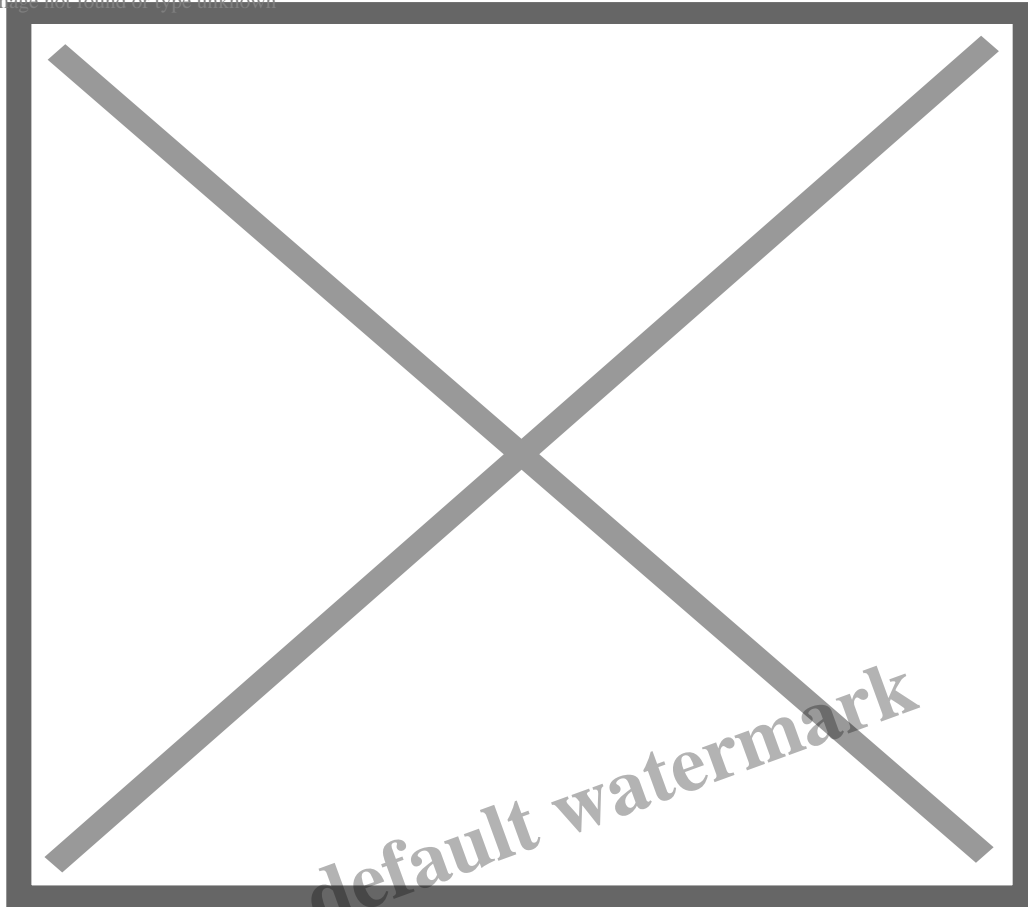
*Santa Cruz Custom OM and a California Coastal Redwood*

*Redwoods were extensively logged for structural timber and remaining stands are precious but vulnerable. Recycled redwood has stories to tell and music to make.*

### Tunnel 13

On October 11, 1923, Southern Pacific train number 13, the Portland-San Francisco Express, entered Tunnel number 13 at the summit of the railway over the Siskiyou Mountains in Southern Oregon, close to the border with California. It was pulling 13 carriages.

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From: [“Tragedy at Southern Oregon Tunnel 13”](#) by Scott Mangold

The train never made it fully out of the tunnel. Instead it went down in history as the last train to be robbed in the western US. Four men were murdered, a carriage was nearly destroyed, and the perpetrators went on the run for 4 years before finally being captured.

I’m part of the generation that were brought up with [Western movies](#). In those days they were less appropriately called “Cowboy and Indian” movies. They usually involved stories of the American frontier (the Wild West) – interactions between settlers, ranchers and the Native Americans (always skewed to portray the Native Americans as the baddies), small frontier towns, outlaws and sherrifs. And heroes like the Lone Ranger and Roy Rodgers.

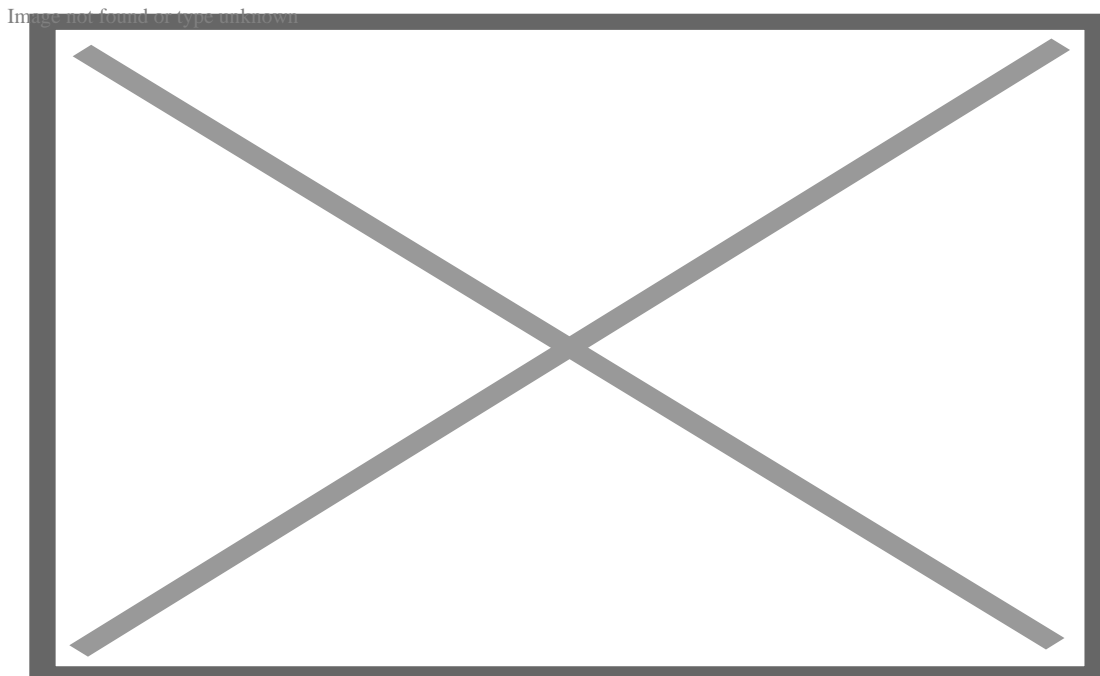
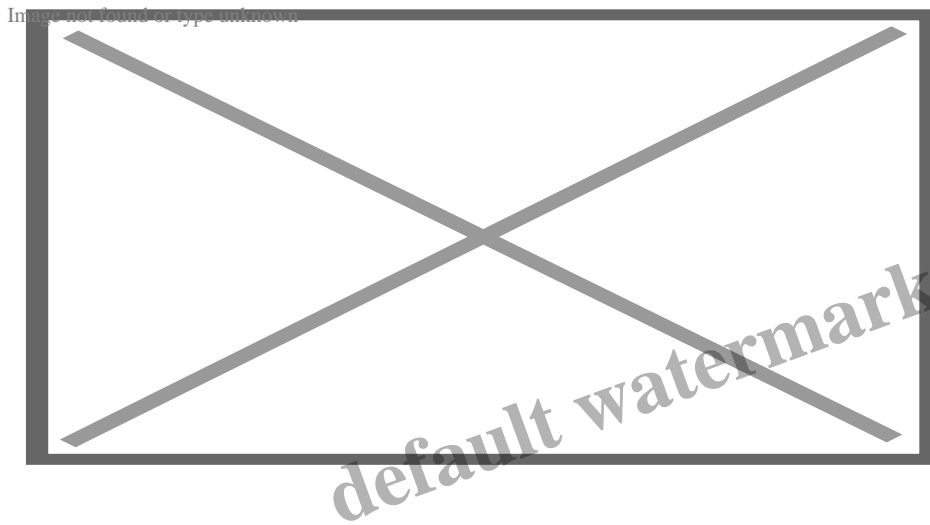
*Eric Bogle captures the young Scottish cowboy experience*

Stagecoach and train robberies were also common in Western movies. As the railways spread across the continent, they became the primary mode of transport for people and goods of all sorts. They also carried mail and payrolls. Their slow passage through isolated areas made them prime targets for outlaws looking to make quick and easy money. Famous train robbers included Jesse James and Butch Cassidy. And the 1969 movie [“Butch Cassidy and the Sundance Kid”](#), starring Paul Newman and Robert Redford, has some epic train robbing scenes.

While the exploding railcar and Sundance’s sarcastic question “Think you used enough dynamite there, Butch?” get plenty laughs from the audience, the real-life counterpart that took place in Tunnel

13 was more tragic than funny.

The attempted robbery of Train 13 was the culmination of a carefully-laid plan by the DeAutremont brothers, twins Ray and Roy and younger brother Hugh. They'd heard that the train – dubbed the “Gold Special” would be transporting a large amount of gold. As the train entered the tunnel, the brothers jumped on the train and held engineer Sydney Bates at gunpoint. The mail clerk, Elvyn E. Dougherty, wouldn't open the carriage door and so they used dynamite to gain access. However, inexperience with dynamite resulted in the whole carriage being blown up and Daugherty being killed. The brothers shot brakeman Coyle Johnson who appeared out of the smoking tunnel and then also killed fireman Marvin Seng and engineer Bates.



*Train 13 mail car after being blown up by the DeAutremonts. Source: [Jefferson Journal](#)*

All this death and destruction resulted in zero gain for the DeAutremonts – the train was not carrying large amounts of cash or gold, and the brothers were left empty handed. Their ham-fisted but deadly efforts led to a massive man hunt, but they managed to evade the law for 4 years before eventually

being captured, tried and sentenced to lengthy prison terms. Ray De Autremont later contributed first-hand accounts to a book whose title sums things up nicely – [“All for Nothing”](#).

*Mail Tribune account of the Tunnel 13 disaster*

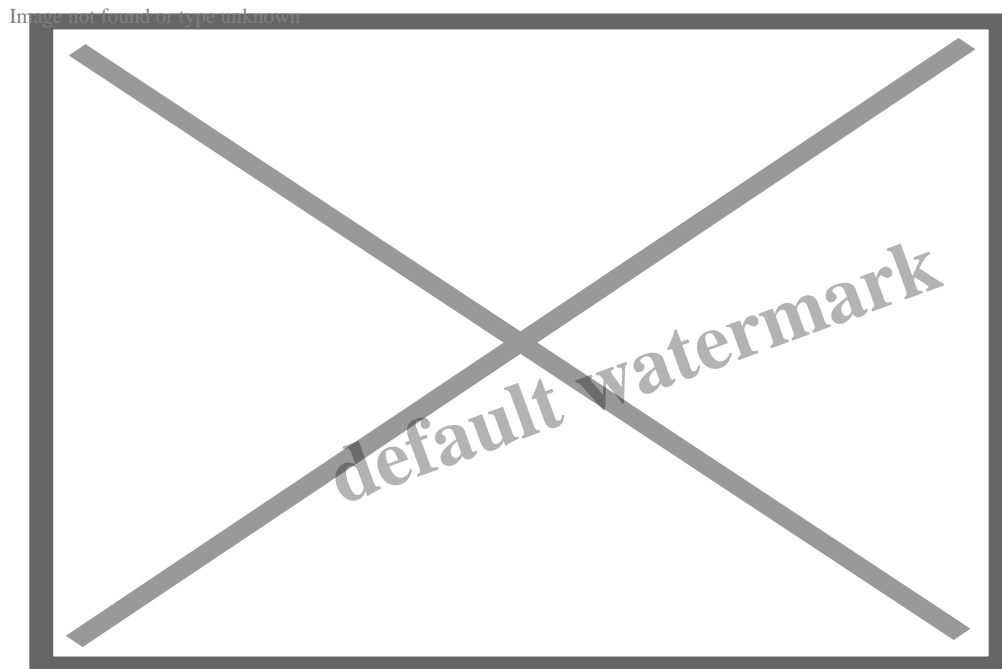
The Tunnel 13 train robbery has been the subject of 4 books, and the tunnel remains something of [an attraction](#) – with some stories saying it is haunted by the ghosts of the men killed there. It even has a [beer](#) named after it.

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## Tunnel timbers

OK, so a cool but tragic story about the last train robbery in the American West. But what, I hear you ask, has it got to do with the Nature of Music?

Well, here's the thing. Tunnel 13, as with many tunnels in the region, was strengthened using large timber beams. I haven't been able to source any photos of what the inside of Tunnel 13 might have looked like, but did find this lovely photo from inside the restored historic Oneonta Tunnel alongside the Oneonta Creek in Mt. Hood National Forest.

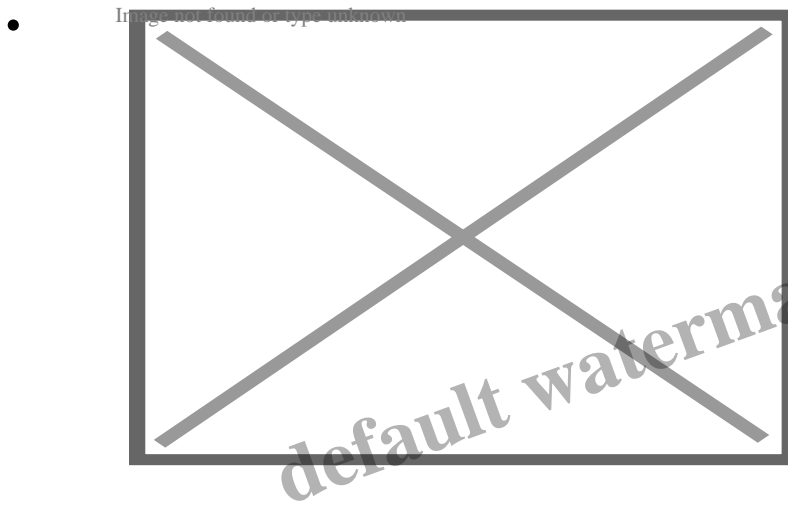
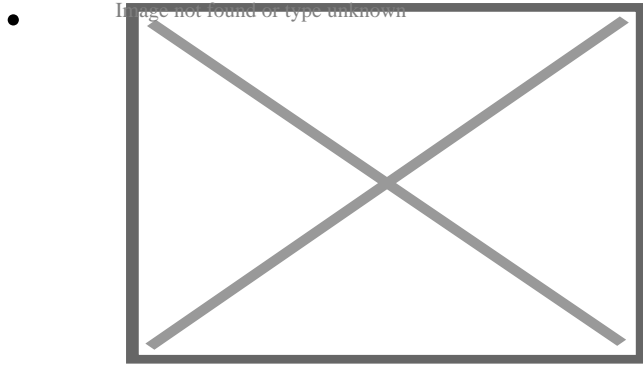


*Oneonta Tunnel with restored timber support beams and lining. Photo by [Thomas Franta 2017](#)*

The railroad passing through Tunnel 13 remained in use throughout the 20<sup>th</sup> century. In November 2003 a fire in the tunnel, believed to have been started either by vandals or by itinerants trying to stay warm, burned for days and caused the track to melt and bend and collapsed sections of the tunnel.

In order to repair the tunnel, it [was decided to replace the original wooden supports](#) of the tunnel with steel fiber reinforced [shotcrete](#) (concrete projected at high velocity primarily on to a vertical or overhead surface). This produces a high strength tunnel lining and reduces the danger of fire posed by the wooden beams.

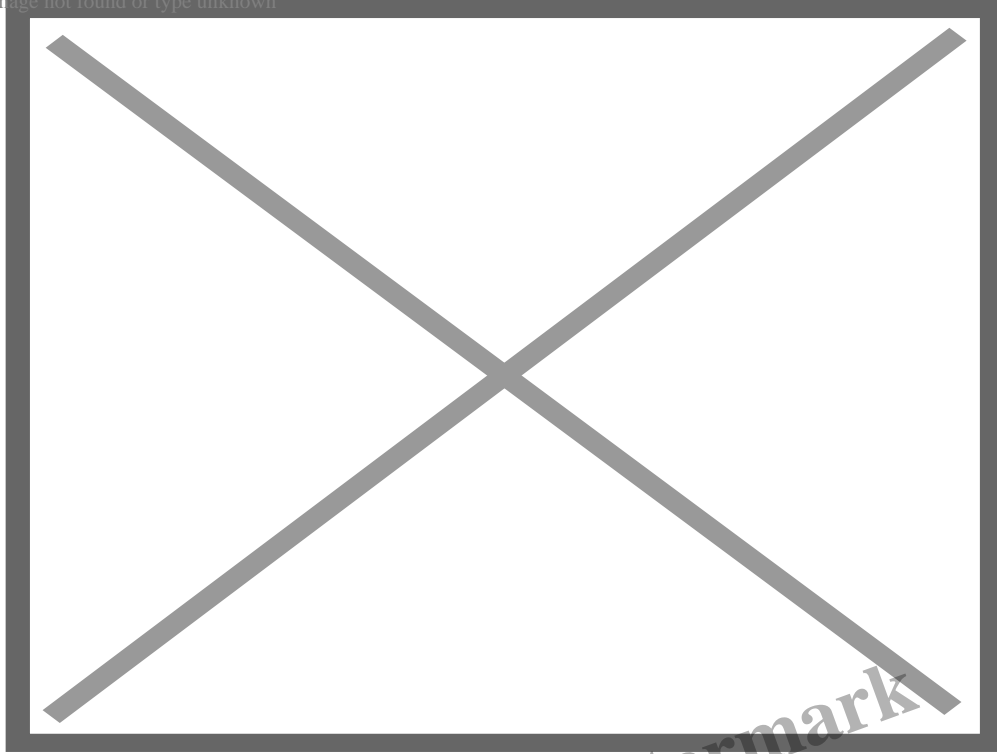
The scorched old wooden beams were removed and sold as salvage. It turned out that under the fire scorching and 120 years of soot, ash and dirt the beams were beautiful old growth Coastal Redwood.



*Beams from Tunnel 13 after removal. Sources: [HK Guitarstore](#) and [Placemakers Inc](#)*

## California Coastal Redwood

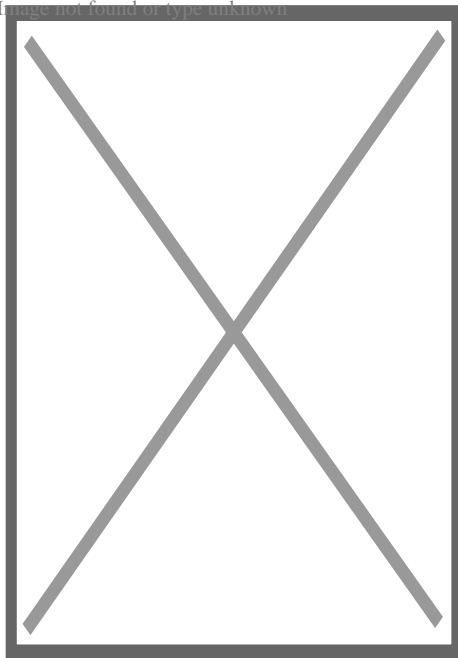
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*Coastal Redwoods*

California Coastal Redwood (*Sequoia sempervirens*) is one of the most remarkable trees on the planet. I first heard about these amazing trees as a boy growing up in Edinburgh, Scotland. I used to get a weekly boy's comic called "[The Hornet](#)"

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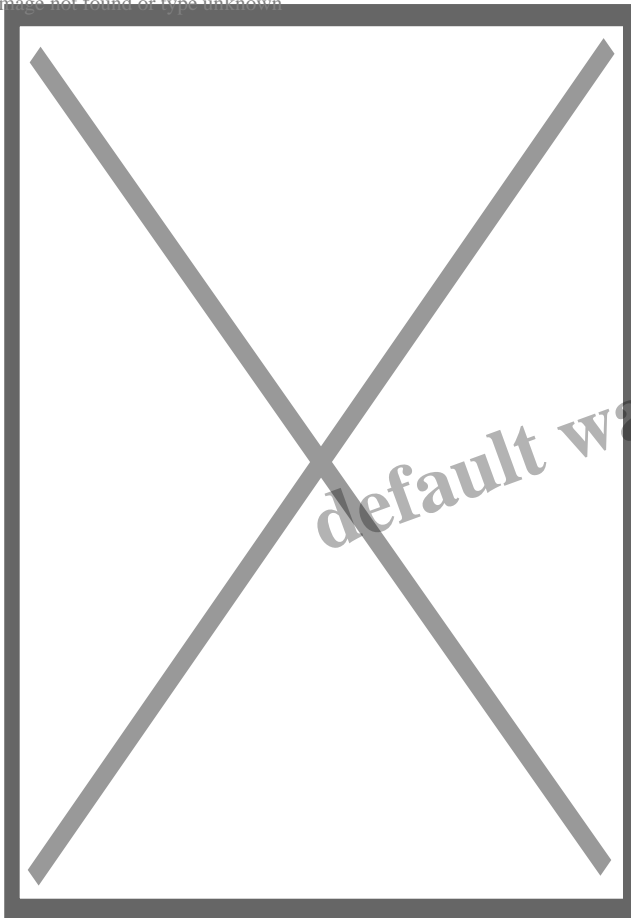
Source: [Comicsworld](#)

As well as lots of action stories, the comic also gave interesting snippets about historical events and

natural wonders. One week, there was a little story about the California Redwoods – the tallest trees in the world that can live for up to 2000 years. I was fascinated by this and decided to make it one of my ambitions to visit these amazing trees.

I was lucky enough to be able to fulfil this ambition when I got to spend a year in California studying at UCSB. One of the courses I took was a 2 quarter course, Botany 103 Plants of California, on the flora and vegetation of California, run by an extraordinary professor called [Bob Haller](#). The class was inspirational, as evidenced by all the people who fondly remember it, as in a [special publication](#) by the California Botanical Society (p14 has my contribution to this).

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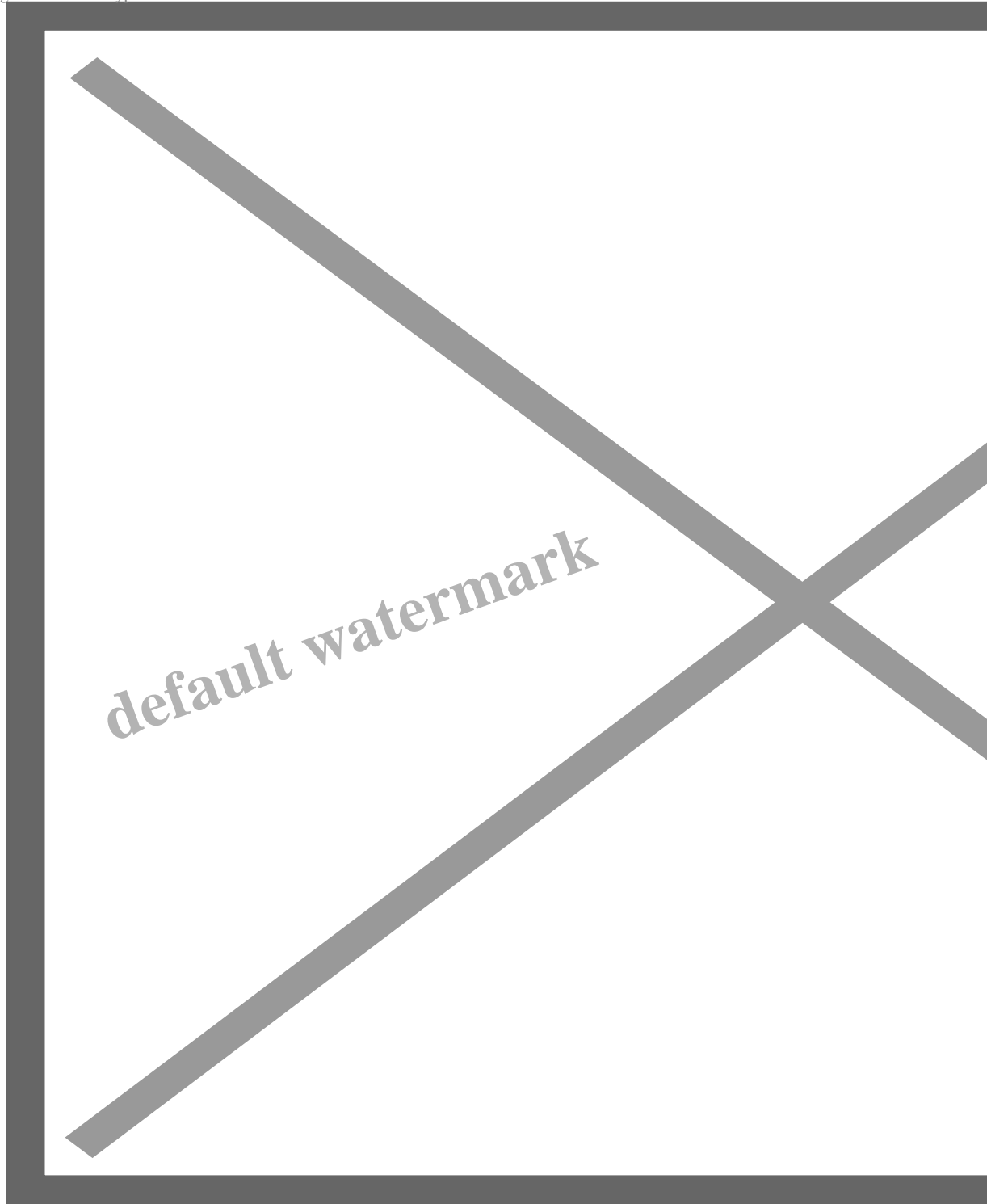
*“Group W” on a UCSB Botany 103 field trip in 1977*

One of the fieldtrips associated with this course took us up the California coast and into the redwood forests in the Santa Cruz Mountains at [Big Basin Redwoods State Park](#), California’s oldest state park.

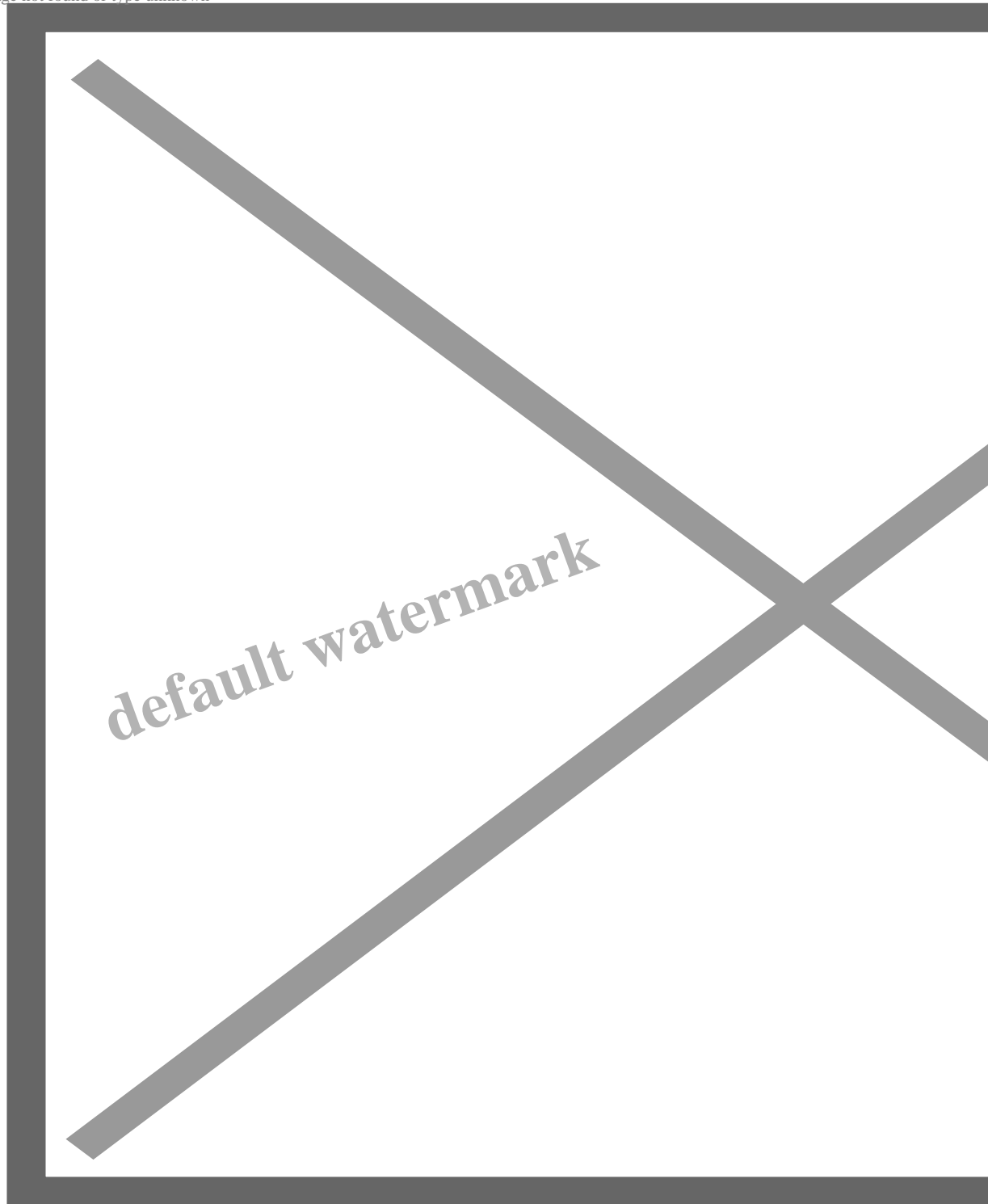
Reading about redwoods in a boy’s comic is one thing. Actually being in amongst them is something else entirely. Although you can sort of get the size of the mature trees from reading about [their dimensions](#), it still doesn’t prepare you for just how amazingly huge and magnificent these things are. And it’s not just their size. There’s an almost serene nature to the forest – still, shady, quiet – and the big trees are accompanied by an array of lush green understory, particularly where flecks of sunlight penetrate. The whole sensory experience is pretty mind-blowing.



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I've been fortunate enough to be able to visit the Big Basin Redwoods and other groves of ancient Coastal Redwoods on numerous occasions since that first visit. Each time, I experienced that same feeling of serenity and awe – visiting the Redwoods never grows old, and they seem almost timeless.

## Logging the Redwoods

While it's easy to be seduced into thinking that these big Redwood trees are enduring wonders, it's unfortunately true that the patches of old Redwoods that remain today are a mere fraction of the original forest extent.

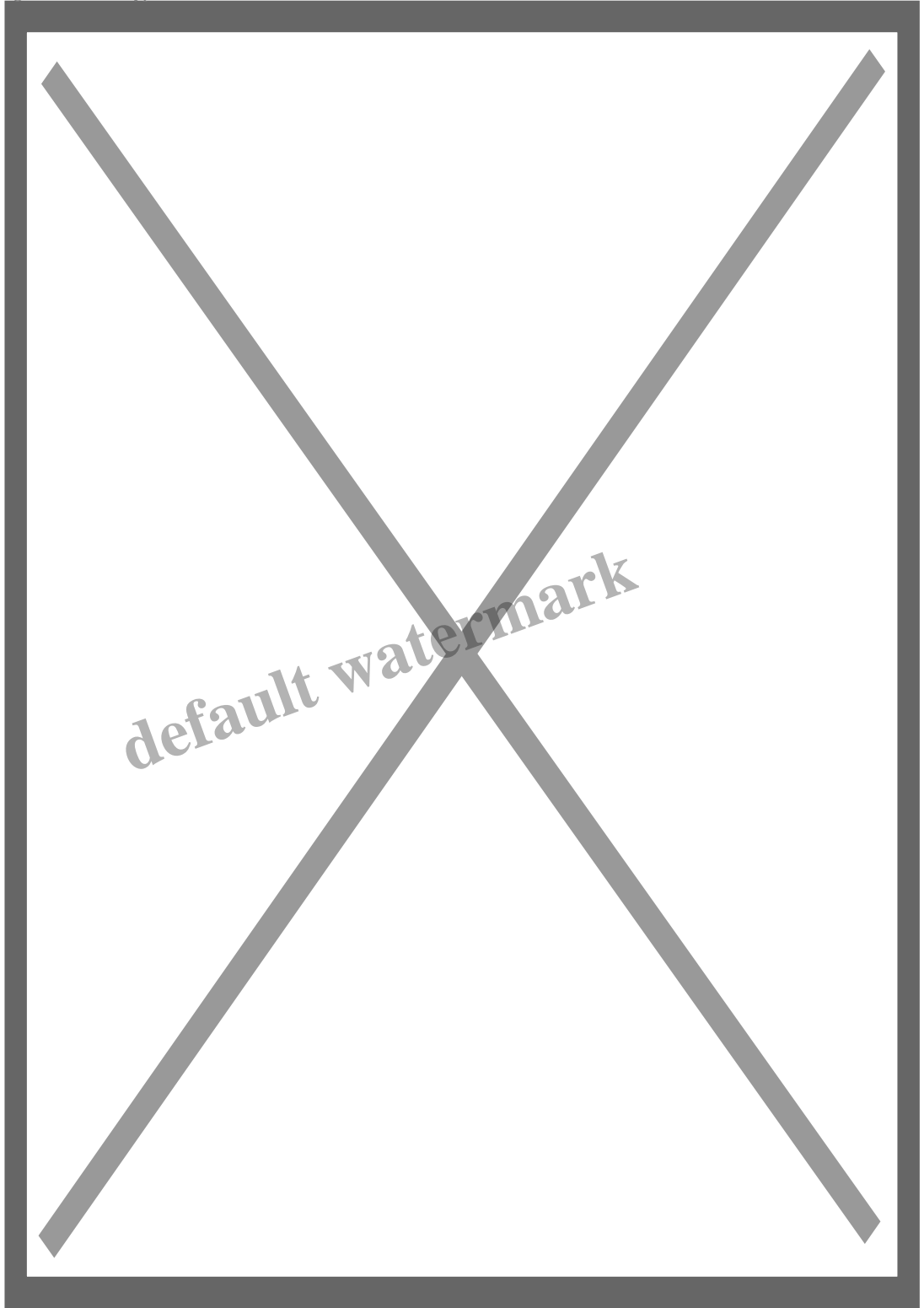
The timber for the support beams in Tunnel 13 would have originally been magnificent trees like the ones in the photos above. We've read in other posts about the ways in which magnificent forests around the world have been extensively logged – for instance, the [forests of the Pacific Northwest](#), the [Kauri forest in New Zealand](#), the [Atlantic Forest in Brazil](#). The Coastal Redwood forests were no exception.

When the tunnel was constructed in the 1880s, extensive logging of the old growth forests in California and Oregon was at its height. [Kat Anderson](#) describes the “rapacious” process of indiscriminately logging the forests that led to 40% of California's old growth disappearing by 1900.

Here too, there are amazing accounts and photographs of the process of cutting and felling these huge trees – no mean feat before the advent of mechanisation and power tools.

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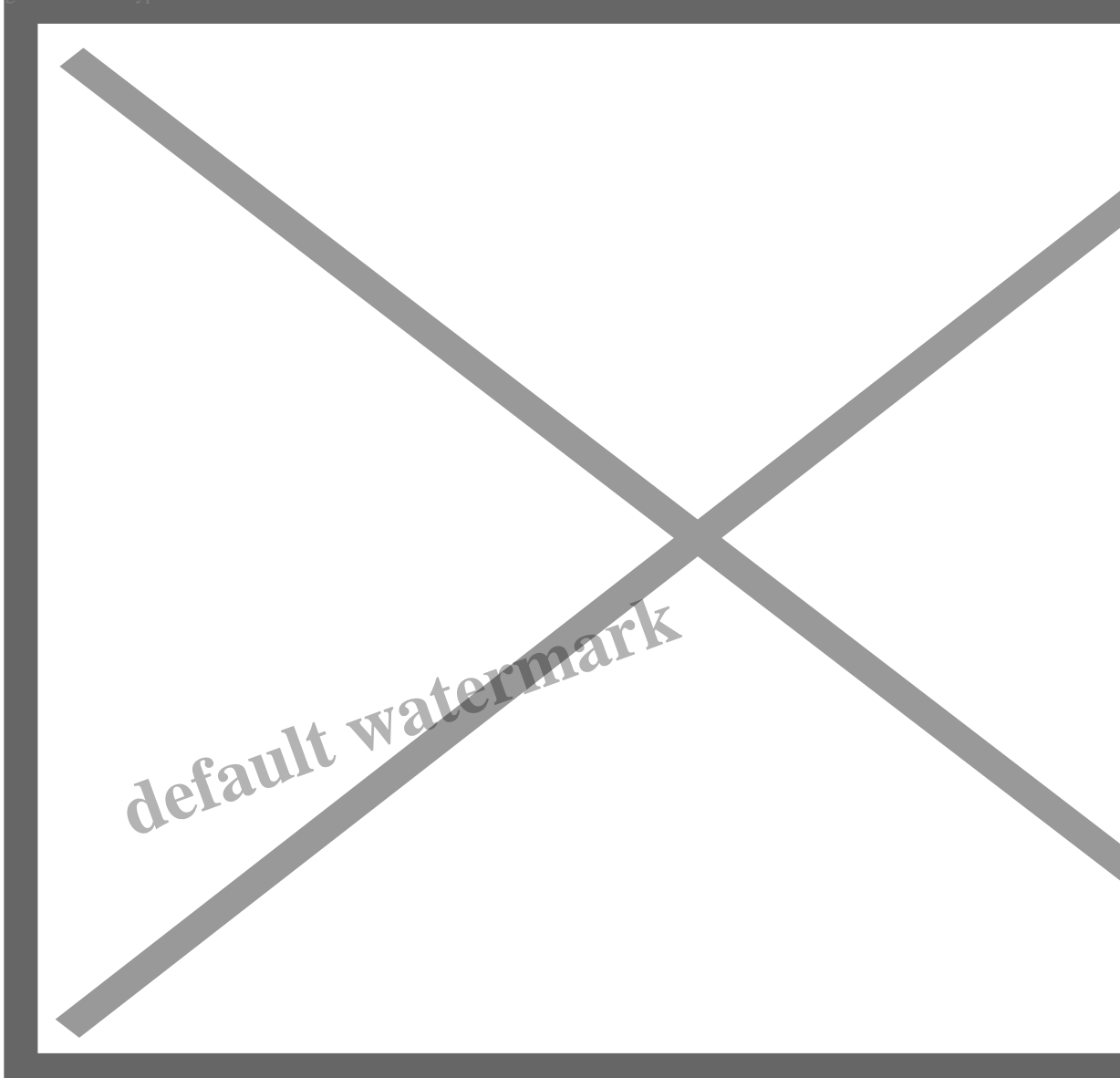
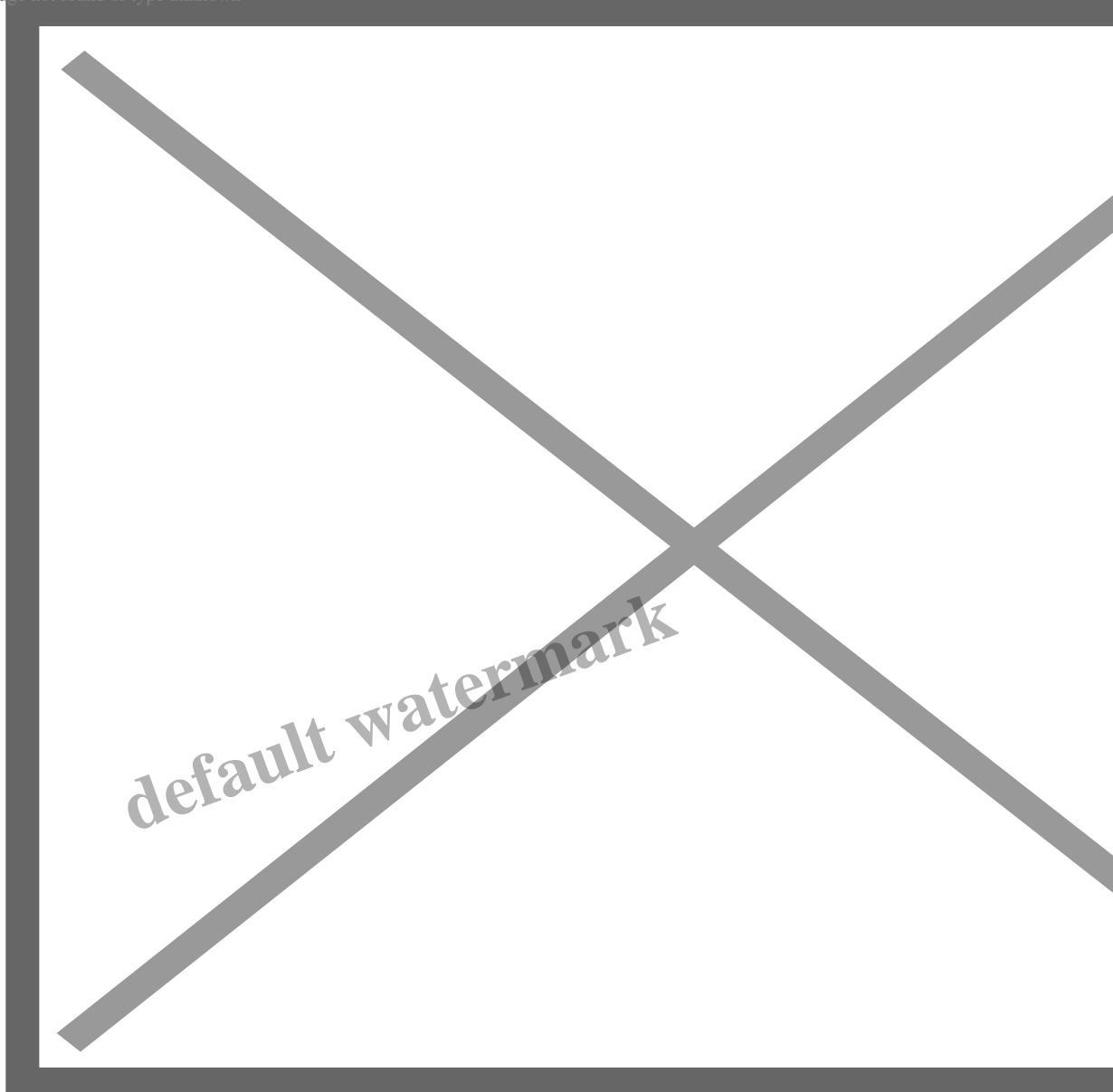


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*Felling old growth Redwoods. Source: [Amusing Planet](#)*

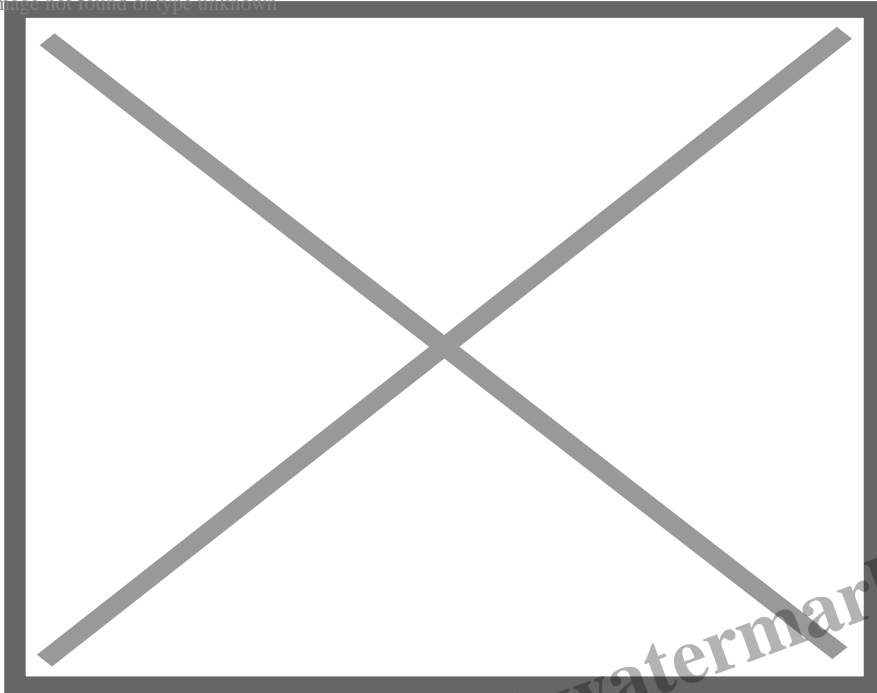
Logging continued in the Redwood forests through the 20<sup>th</sup> century – by the 1960s, second-growth forests (that had been logged once already) were being logged again, but old-growth was still considered fair game in areas where it wasn't protected in national or state parks. The wood was used as structural timber and a host of other things.

## Save the Redwoods!

A conservation counter-current started in the early 1900s in recognition of the rapid loss of old-growth Redwood forest across its range. The Save-The-Redwoods League was set up in 1918 and has been active ever since in fighting for the protection of the Redwoods. The League and other organisations and groups have also been instrumental in ensuring that a string of protected areas stretches the

across the range of the Redwoods. The beautiful book "[Coast Redwood: A Natural and Cultural History](#)" tells the story of the struggle to protect the giant forests.

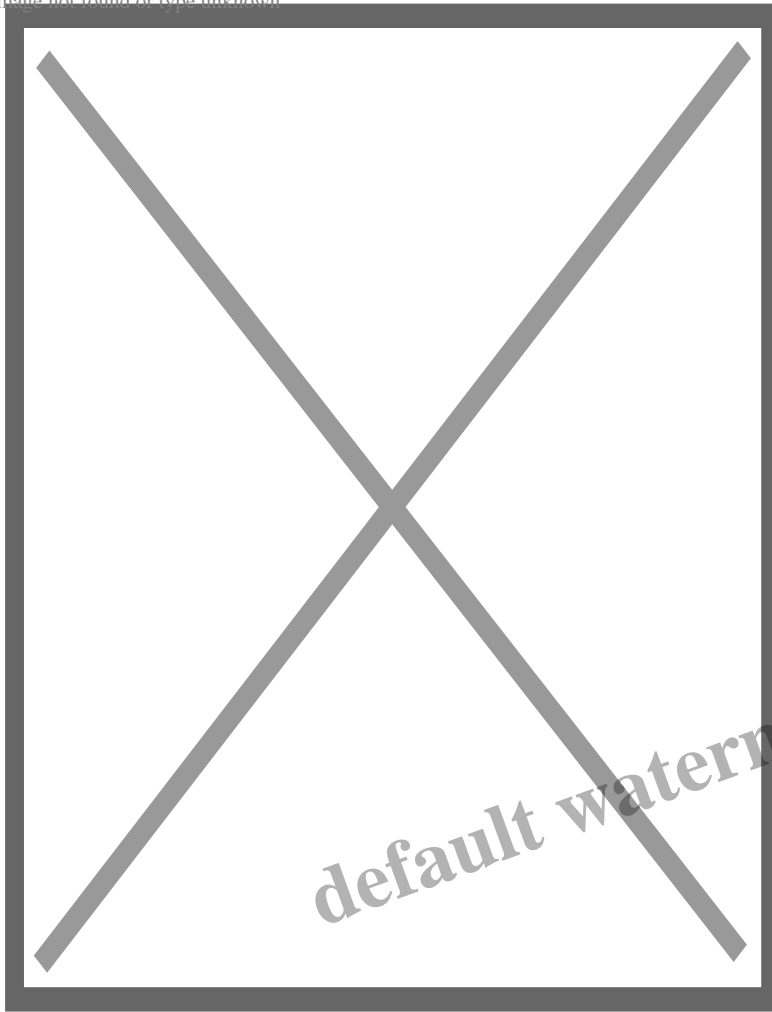
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*California women were important participants in the fight to save the Redwoods. Source: [Ozy.com](#)*

Even with that monumental effort, only 5% remains of the original extent of old-growth forest. Logging Redwoods continues today, but is restricted to second- and even third-growth forests.

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Historic range and remaining Redwood areas. Source: [Save the Redwoods](#)

## Back to that tunnel

With that background on the Coastal Redwood, it's easy to see what a precious commodity a bunch of salvaged tunnel timbers from the 1880s might be. The Redwood available as timber today can still be good quality, but it is certainly not old-growth. Timber like that taken from Tunnel 13 comes from another era, and it's like is not likely to be seen again. Indeed, apart from salvage timber, the only other source is from [sinker logs](#) – timber that sank while being transported down rivers and which has been preserved underwater for maybe over a century – more on that in a later post, and see an [earlier post](#) for a photo of a sinker Redwood guitar top.

Redwood is recognised as a useful [guitar tonewood](#) and makes great guitar tops – it's generally considered to be a bit warmer and less bright than a spruce top. If you're interested you can see if you can pick the differences in a video [here](#) comparing two guitars that are identical apart from the tops.

So, imagine the exciting prospects of finding Redwood that is not only amazing old-growth timber but has also aged and air-dried for over a century in a tunnel. Some folks even go so far as to suggest that the tunnel timbers also absorbed some of the train-related vibe of the tunnel.



Fortunately, some of the Tunnel 13 timber made its way to a few guitar makers who have been using it to make guitars that not only sound great but come with the Tunnel 13 back-story.

## A Santa Cruz guitar

One of those guitar makers is Richard Hoover, founder of the Santa Cruz Guitar Company. Based in Santa Cruz, California, the shop is only a stone's throw from Redwood forests.

Richard has to be one of the nicest, most thoughtful guys on the planet, and I had the pleasure and privilege to spend some time visiting him in his Santa Cruz shop fairly early in my exploration of the guitar world. I learned a huge amount from him and got to see how his fine custom guitars are built.

We talked a lot about the woods that go into guitars, and I really appreciated Richard's take on using different woods, and on the sustainability aspects: "We consider the woods flavours or colours rather than better or worse. They're different and they give different choices. Our only limit is everything we use is responsibly harvested. So if it's not coming through a responsible food chain, we don't use it."

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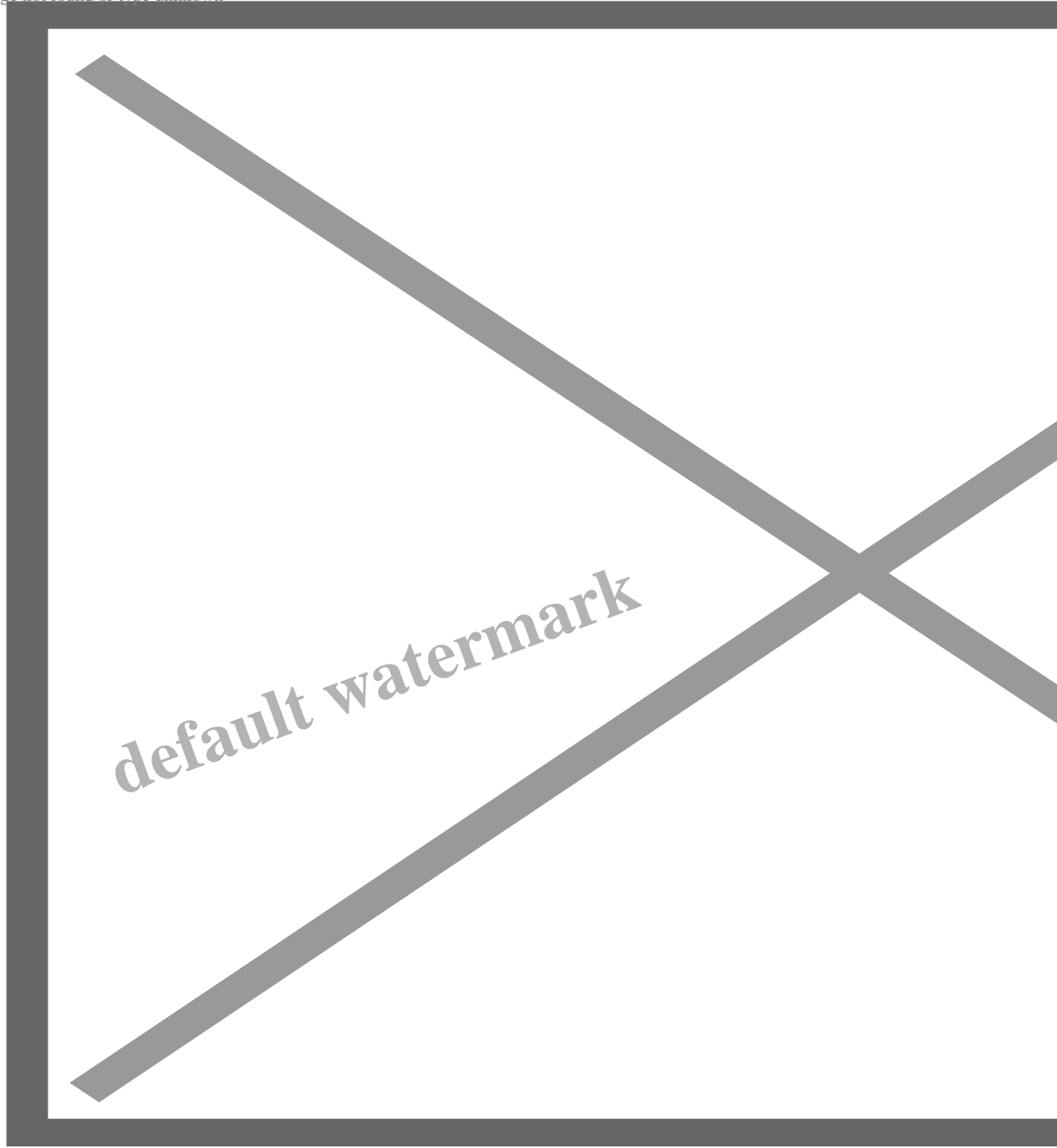
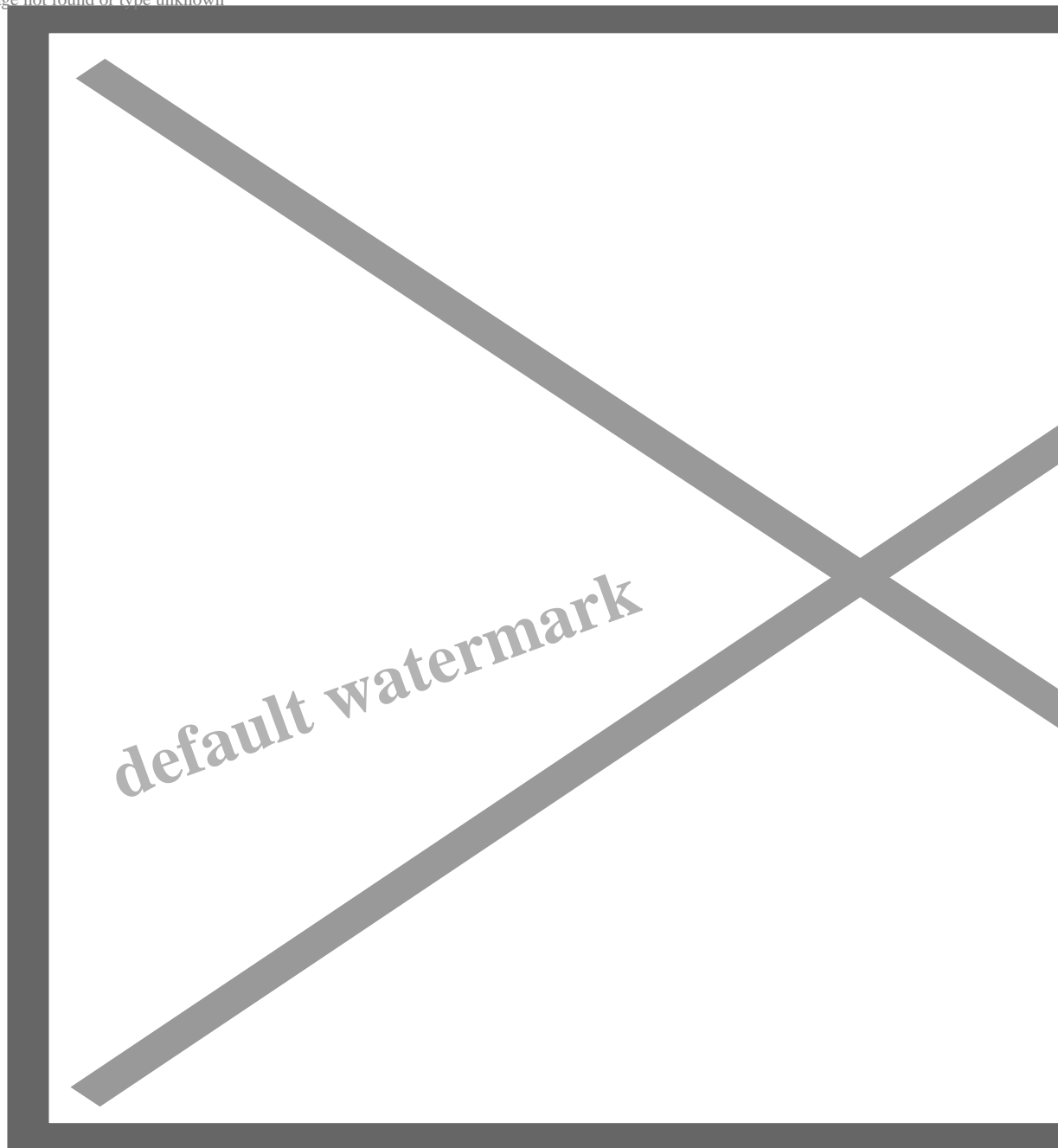


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*Richard demonstrates wood characteristics in the Santa Cruz shop*

It was there, while being shown some of the woods they use, that I first encountered Tunnel 13 Redwood and the story behind it. I guess that stuck with me, and a while later I got back to Richard and started discussing a custom guitar with a Tunnel 13 top matched up with something local from California for the back and sides. Richard suggested walnut as an option, and we settled on a set of highly-figured Bastogne Walnut, a hybrid mix of Claro Walnut, which is native to California, and English Walnut.

And so it was that about a year after I visited Richard, I was able to pick up a Santa Cruz Custom OM

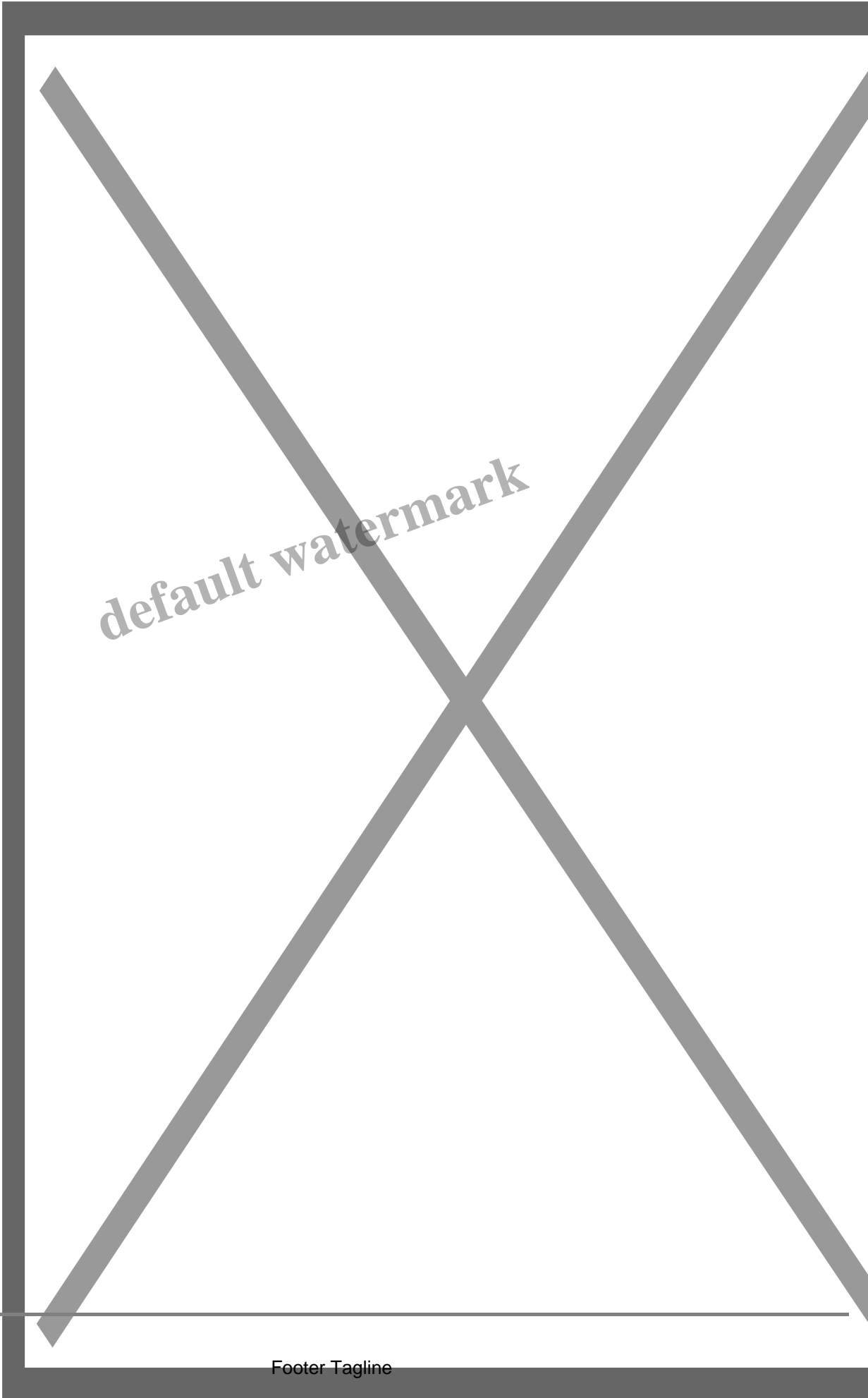
from [Sylvan Music](#) in Santa Cruz. It was pretty mind boggling that a tall 1000-year-old Redwood that was turned into railway tunnel supports well over a century ago, experienced a disastrous and bloody train robbery, and was finally rescued as salvage had now been turned into a beautiful guitar top – destined for Australia. Combined with the walnut back and sides, it's a pretty fine guitar.

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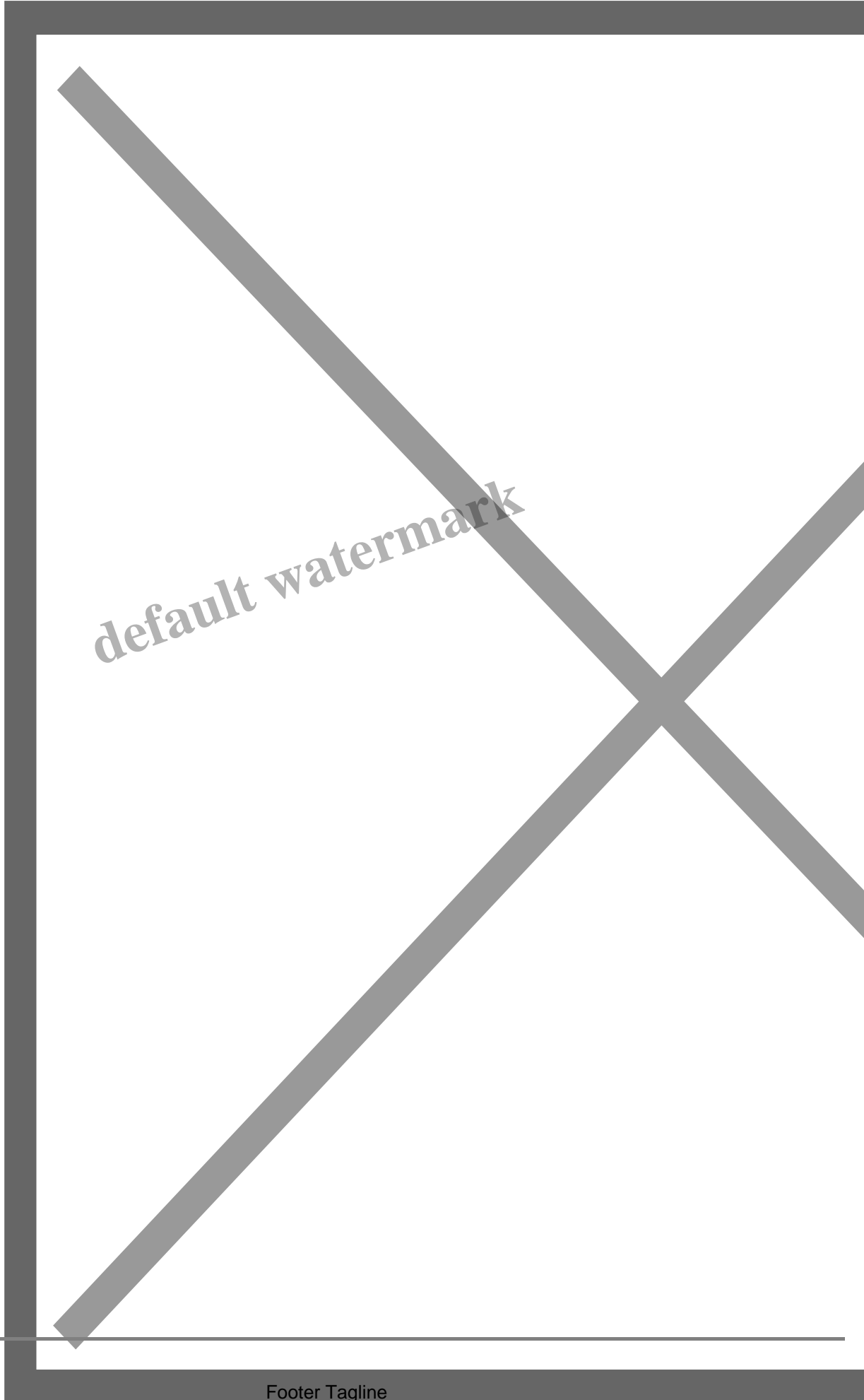
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## Whither the Redwoods?

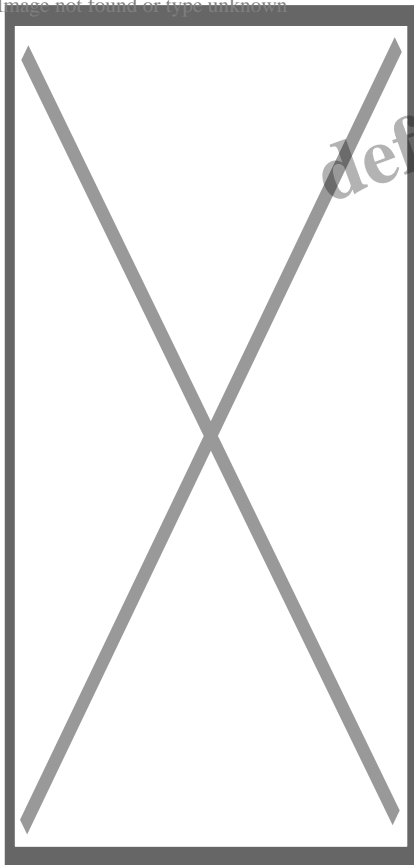
The Santa Cruz guitar with its Tunnel 13 Redwood top now sits in my home in Western Australia, but every time I play it my mind goes back to the Redwood groves of California. The ageless and enduring magnificence of these forests is somewhat comforting in these turbulent times.

The trees seem like they have been there forever. But lurking behind their air of permanence is a question over whether they will continue to persist forever into the future.

I was saddened to see reports last year that a [severe fire](#) had ripped through Big Basin Redwoods, destroying most of the built infrastructure and burning through the forests. That was just one of many severe fires in Western North America that year, and at I write this, the [fires are raging again](#) this year. As they are in [Greece](#), Turkey, Spain, Italy.... The list goes on.

Fire has likely always been a part of the [Redwood forest ecosystem](#). Both natural fires and fires set by Native Californians are likely to have been common. And the Redwoods are supremely adapted to be able to survive and recover from fires.

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Source: [KQED](#)

As Kristen Shive, former director of science for the Save the Redwoods League [said](#): “The most important thing to understand is that coast redwoods really are some of the most resilient species on the planet. That’s why they live as long as they do. And they actually are adapted to both low and high

severity fire.”

[A news report](#) in June 2021 was headed “It will be beautiful again”. That’s despite the fact that [another fire](#) started in the park this May – [possibly started by embers](#) that had continued to burn from last years’ fire.

While the big trees look like they have survived and are regrowing, the same may not be true for other components of the forest or for the younger redwoods. Fire acts like a reset button for the forest – like a computer, it switches off and then begins to function again. Unlike a computer, though, the outcome of the reset may not be to take the forest back to where it was before the fire.

The outcome is contingent on many factors, such as fire severity, time since the last fire, weather conditions before during and after the fire, whether the fire burned everything or was patchy. This has always been the case, but in today’s world fire-related factors also interact with other changes going on. The big one is, of course, climate change – changes in rainfall patterns, increased incidences of hot, dry conditions, and longer dry seasons all affect the probability of fire. But there’s also changed patterns of forest structure caused by extensive logging or conversion of forests into other land uses. The incidence of forest pests and diseases is also changing. As is human use of the forests, as more people seek recreational opportunities or want to live in or close to the forests.

All these things interact in complex and sometimes mysterious ways, and it’s a tricky task working out how these interactions are going to play out. If you’re interested in this side of things, have a listen to my friend and colleague [Joan Dudney](#) talking about her [work](#) on how drought and disease interact in the Sierra Nevada in California.

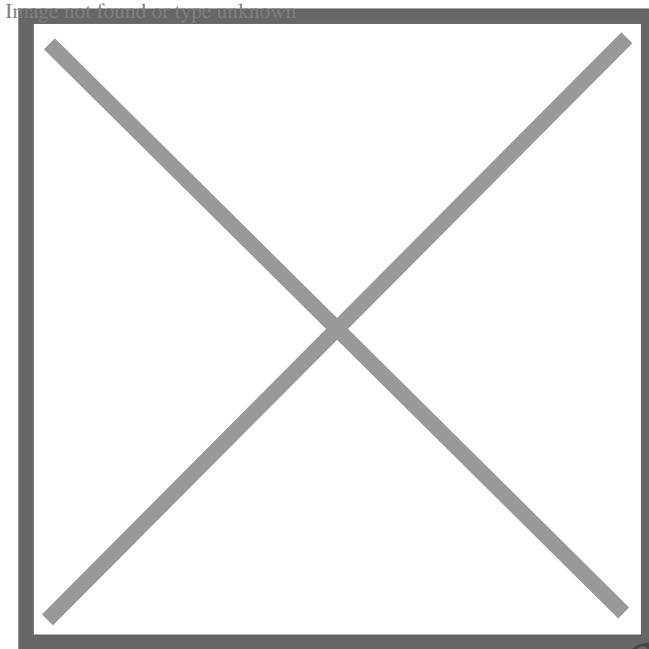
These interactions also play out in different ways in different types of forest. While the largest Coastal Redwoods seem to have mostly survived the fires, the other Sequoias in California, the Giant Sequoias (*Sequoiadendron giganteum*) found in the Sierra Nevada, seem to have fared less well. The [Castle fire](#) that burned in Sequoia National Park in the second half of 2020 possibly destroyed 10% of remaining mature giant sequoias. That’s a lot when you don’t start with huge numbers to begin with.

## Oenota Tunnel

A quick jump back to the Oneonta Tunnel photo from earlier in this piece. This was a road tunnel in the Columbia River Gorge, built in 1916 and used until 1948. It was then decommissioned and blocked with rubble. In the early 2000s, however, it was decided to restore the tunnel as part of the Historic Columbia River Highway State Trail. It was reopened for pedestrian traffic in 2009. The restoration involved installing new timber supports and lining – in this case cedar was used.

The reason for mentioning the tunnel again here is that it was [engulfed by fire](#) during the 2017 [Eagle Creek fire](#) – one of many fires in the Pacific Northwest that year, and this one even jumped across the Columbia River into Washington State. The photo by Thomas Franta must have been taken not long before the tunnel was destroyed. All that beautiful timber restoration work was gone.

There are plans to [restore the tunnel](#) once again, but this just another example of how fires are [increasingly reshaping the landscape](#).

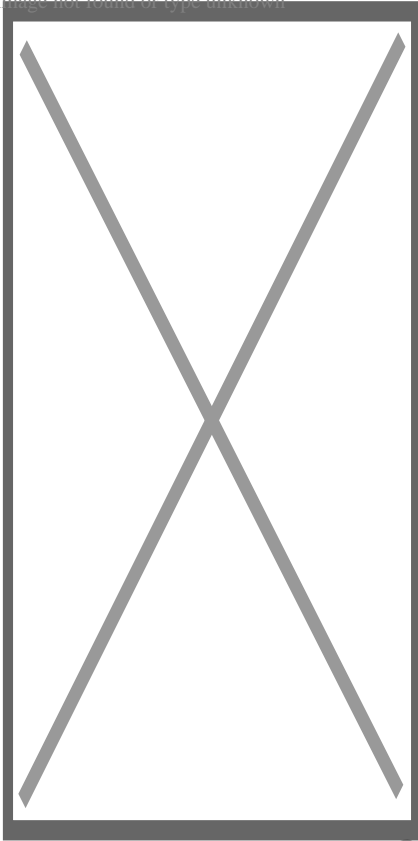


Oenota tunnel on fire. Source: [Wyeastblog](#)

The fires raging in California and elsewhere threaten human lives, homes and property – but they also threaten other things of value – the big trees, the restored tunnels, the clean air human and other life needs to survive, and many other things.

I picked up a bottle of wine from our local store the other day from a South Australian winery called “Train to Nowhere”, which seemed apt while I was writing this piece. That trees that have stood for millennia are now under threat because of things humans are doing to the planet should give us pause for thought. I’d like to hope that a kid reading a comic today (or more likely watching a YouTube video these days) will still have the chance to grow up and visit the majestic Redwoods just like I did. Maybe we can still turn this train around.

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*As always, Bruce has a song that fits*

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