



The planet's coolest jobs: redwood tree doctor

by emilyfrost



Emily Burns is known as Dr. Fern, as she works with fern species that grow beneath the redwoods © Emily Burns

March 27, 2018

California's redwood trees are the tallest in the world, towering above the forest floor like nature's skyscrapers. But these giants are facing many threats to their health and existence, and that's where Emily Burns comes in. As Science Director at [Save the Redwoods League](#), Emily spends her days looking up (and down) in the redwood forest on [California's](#) coast, working to protect and conserve it. Let's find out a little more...

Tell us a little bit about what your typical day involves

Mostly I work in an office, but I also get to visit different parts of the redwood forest in northern California. I'll do a lot of hiking on the ground with rangers and scientists, and anyone else taking care of redwoods. I work with many people who are studying how the redwood forest grows, and how it deals with challenges like forest fires and being taken care of by different people in different ways, and we design strategies that protect the forests.

What do you do to conserve the redwoods?

We do several things. Firstly, we buy private redwood forest to protect the trees in it, which we then open up to the public and make part of the redwood park. The second thing we do is look

at younger redwood forest, and bits of it that have been cut down in the past, and work on the reforestation and restoration of those areas – trying to grow more trees there again. The third thing we do is spread the message about redwood conservation so that we can grow the next generation of people that will help us take care of the forest. We teach young people all about the different kinds of cool things redwoods can do – we call them ‘redwood superpowers’!



California's redwood trees are truly awe-inspiring © Jon Parmentier

What are the redwood superpowers?

Redwoods are amazing trees! They are able to take moisture from the air directly into their leaves, which cuts out the long process of it having to be delivered through the roots (which would take a long time for a tree like a redwood!) Redwoods also have really thick bark, which helps protect them from damage.

How tall can a redwood tree get?

The tallest ever recorded was 115m tall! 60m redwoods are very common, and trees that grow near water in moist soil are usually more like 90m.

What are the main threats facing redwood trees?

One of the main issues is that so much of the redwood forest has been cut down over the last few centuries, and because of that we don't have much of the original forest left – the part with the biggest and oldest trees. Our main priority is to help regrow the forest around those older trees, and to cultivate habitats for endangered birds and other species. As we grow the forest back, it will be stronger and more resistant to changes in climate.

At work you're known as Dr Fern... why is that?

My job is focused on the forest overall, in particular the redwood trees, but I have a special research project that centers on the ferns that grow beneath them. Often when we stand in the redwood forest we are looking up, of course, at the tall trees. But one day I noticed that there is a special type of fern that grows at the base of all the redwood trees. An interesting thing about these ferns is that in the wet redwood forest the ferns are really tall, taller than me! And then in the drier forest they tend to be much shorter. My study looks at how those ferns are growing in response to the climate.



Redwoods have been known to grow up to 100m tall! © Mike Shoys

How do the ferns help you look after the forest?

We do think that the ferns are an indicator of the condition of the rest of the forest. As they are smaller than the redwood trees and can't hold as much water, they are much more sensitive to drought and warming weather. If we see a change in the fern, it's a sign that there might be a change coming for the redwoods too. The way that the ferns change shows us how we might need to take care of the forest in different places.

What's the coolest thing about your job?

I would say the coolest thing is being able to walk out under the tallest trees in the world. Working within the coastal redwood forest is awesome – I get to listen to the birds that live high up in the trees and walk through ferns that are even taller than me. Just standing at the base of these incredibly large trees is pretty awe-inspiring!

How did you become a redwood tree doctor?

That's a good question! I have always loved the outdoors – I enjoy gardening, hiking and am always outside. I grew up in California under the redwoods, and I learnt about all the interesting

things they are capable of doing. That made me so excited, and I realised I just wanted to spend my career outside. That's what got me started on redwood science. I studied plant biology at college, and then I went to grad school to study climate change. I am really interested in how these plants are able to respond to changes in their climate.



Emily works to educate people about looking after the redwood forest © Paolo Vescia

What small things can we do to help with redwood conservation?

We really hope that people come and visit the redwoods to learn about what the forest needs to be healthy. The best thing to do is to be interested, and come and learn how you can make a difference by not littering, volunteering at your local park, things like that. Anyone can be a good trail steward and help keep the trails clean!

What advice would you give someone interested in pursuing a career similar to yours one day?

My advice would be to start exploring and discovering what you can about a place you love. The more we know about these places, the better we are able to protect them!

Eager to find out more about nature's tallest trees? Check out [this article](#) to explore the forest a little deeper.

<https://bit.ly/2plyeMi>