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Red Mangroves Podcast and Scientist Interview

Rhizophora mangle

Follow researchers Candy Feller and Dennis Whigham as they scramble, climb, crawl, and creep through the tangled roots of a mangrove forest. Along the way, learn what's threatening these unique ecosystems where the ocean meets the land.

Transcript

Ari: I'm Ari Daniel Shapiro. And this is One Species at a Time, the story of Earth's biodiversity, one organism at a time.

Ari: There's a place in the tropics where the ocean meets the land, inside a thicket of mangrove trees that grow along the shores. Leaves sprout all around. And it looks like a jungle gym: there are roots everywhere. Special prop roots grow out of the trunks and branches and tuck into the soil below. And all these roots curve and twist as if they're following the path of a tennis ball that never stopped bouncing.

I'll let Candy Feller and Dennis Whigham continue our tour. They're ecologists at the Smithsonian Environmental Research Center.

Feller: It's very difficult walking through a mangrove forest. There's usually water under your feet. Every step is challenge. There's roots everywhere. In some forests, there's a canopy above your head that's also challenging every movement.

Whigham: You're never clearly vertical. You're having to scramble, climb, crawl, creep: everything that is humanly possible to get from one place to another.

Ari: Now, there are a few types of mangroves, and we're gonna focus on one in particular: the red mangroves. And you're probably thinking they're red. Well, they're not, at least not on the outside. Their leaves are green and their trunks are brown or gray.

Feller: What is red is if you carve into the bark, you'll find a very rich, red, tanniniferous layer. It also stains the water, so the waters in and around red mangrove forests are, they're not red, they're more tea-colored.

Ari: And that water sloshes in and between all the mangrove roots, which do more than just create an obstacle course.

Feller: Corals, anemones, all kinds of invertebrates require a hard substrate in order to settle. So that's what the mangrove roots provide and so these roots get overgrown with beautiful macro-invertebrates that are, that are giant. You get huge fire sponges: brilliant orange sponges hanging on these roots. And then you get closer and look at those roots: they're covered in brittle stars and little fish in there, just a layering upon layering of marine organisms all dependent on those suspended prop roots of the red mangrove.

Whigham: The roots are important for other reasons. They start to trap sediments, and they help form land. So they protect the coast and they build the coast.

Feller: But when the mangroves are cut down, that sediment gain is quickly lost. Cause it's the roots that actually provide the trap that holds those sediments there.

Ari: Mangroves are threatened by shrimp farmers, developers, and people using them to make charcoal. Feller and Whigham's science is helping us understand why it's important for the mangroves to be saved. But that research isn't without risk. I found that out when the duo started showing me some of their scars.

Feller: Oh, it's on my calf, I just stabbed myself on a dry branch as I was climbing through the mangrove. It didn't bleed long. And I've fallen out of a tree several times, yeah, and I have been punctured and impaled and cut and scraped and...

Whigham: Most of mine are, they're usually on my shins. Yeah, sometimes when you misstep in there, the lower part of your leg will hit a root and they're very hard.

Feller: I have to share... Oh, I have a really good one. All these prop roots in mangroves, they collect sediment but they also collect garbage.

Ari: Feller unzipped her suede boot and took off her sock.

Feller: There's my scar. I had just taken my mangrove boots off and I stepped down. And there just happened to be a nice, intact light bulb that when I stepped on it, it broke.

Ari: So even researching plants has its hazards.

Whigham: So plants, you may think sit and do nothing, but that's not true.

Feller: It's not true!

Ari: I mean, do you ever just, kind of sit on these roots or branches, and just kind of soak in the scene around you?

Whigham: Oh, yeah.

Feller: All the time.

Whigham: That's why we work in those environments. It's, you know, it's incredible. There are many, many moments that are worth every minute of pain or discomfort that you have. They're certainly balanced out far and away by the great times.

Meet the Scientists

Meet Candy Feller and Dennis Whigham, the scientists you heard featured in the Mangroves podcast:



From left to right: Candy Feller and Dennis Whigham

Where do you work?

Candy: My office and laboratory are at the Smithsonian Environmental Research Center in Edgewater, Maryland. We are part of the Smithsonian Institution. I do my field work in mangrove forests around the world, including Florida, Belize, Panama, Brazil, Australia, New Zealand, and Saudi Arabia.

Dennis: I am a Senior Botanist and have conducted plant-related research at the Smithsonian for almost 34 years.

What do you study?

Candy: I study mangrove forests and the animals that inhabit them. The focus of my research is to determine the influence of nutrient pollution and climate change on mangrove food webs.

Dennis: Our lab is currently working on research grants that support projects on orchid-fungal interactions, the ecology of invasive species, the effects of human activities on estuarine ecology in the Chesapeake Bay, the ecology of headwater streams in Alaska that support juvenile salmon, and the ecology of mangroves; most recently starting a new project in Saudi Arabia.

What are three titles you would give yourself?

Candy: scientist, ecologist, environmentalist.

Dennis: ecologist, botanist, grandfather extraordinaire.

What do you like to do when you are not working?

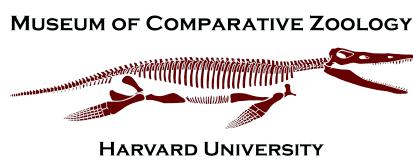
Candy: When I am not working, I am gardening or carving.

Dennis: I spend a lot of time in nature on foot and on bike. I am an avid exerciser which include jogging up and down an 11 story meteorological tower at SERC. I am an over-the hill sports junkie, love to read, love to travel, and look forward to time with my children and grandchildren.

What do you like most about science?

Candy: What I most like about my work is discovering new things and solving complex problems.

Dennis: The Smithsonian has been an outstanding forum to explore all of the trails that my career as a researcher have taken. The freedom to explore, travel and meet wonderful people all around the world has been a joy and blessing.



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