

WATER DEEPLY

ARTICLES Q&A

Why Healthy Forests Mean Better Water Supply

Tree mortality issues in the Sierra Nevada could impact California's most vital watersheds. Jim Branham, executive officer of the Sierra Nevada Conservancy, talks about what the state is doing to restore forests and protect water supply.

WRITTEN BY
Tara LohanPUBLISHED ON
Jul. 28, 2016READ TIME
Approx. 6 minutes

This June 6, 2016 photo, shows a dying tree near Cressman, Calif. California's drought and a bark beetle epidemic have caused the largest die-off of Sierra Nevada forests in modern history. Scott Smith, AP

LIKE MANY PEOPLE who work on forestry issues in California, Jim Branham, executive officer of the Sierra Nevada Conservancy, is still trying to wrap his head around the drought's toll on the region's forests and the 66 million dead trees reported in the Sierra Nevada last month.

"It's hard to comprehend," he said, especially considering that in some areas of the Southern Sierra communities may see 85 percent of the trees around them dead or dying. "The magnitude of the problem is staggering," he said.

One of the concerns is that the Sierra Nevada plays a key role in the state's water system helping to funnel 60 percent of the state's developed water supply to other thirsty areas of the state.

Never miss an update. ↗

Sign up for our newsletter to receive weekly updates, special reports and featured insights as we cover one of the most critical issues of our time.

Enter your email address

✓ SUBSCRIBE

Related Articles

Why Food Waste Means Water Waste
April 6th, 2016

Nestle Plans for Healthy Forest and Water Bottling
June 1st, 2016

Water Planning in the Climate Change Era
February 4th, 2016

Bill to Aid Water Supply by Restoring Forests
June 23rd, 2016

Despite Drought, California Farming Prospered
August 1st, 2016

Conservation Goals Can Keep California Afloat
July 29th, 2016

Look to the Soil for Water Supply Answers
July 26th, 2016

An App That Helps You Save Water and Money
March 23rd, 2016

That's why the Sierra Nevada Conservancy, a California state agency, started the Sierra Nevada Watershed Improvement Program, along with the U.S. Forest Service and other partners. "The pace and scale of science-based ecological restoration needs to dramatically increase in order to stem the tide of large, uncharacteristic wildfires and further degradation of these ecosystems," the agency stated.

Water Deeply recently spoke with Branham about the program and what kind of restoration work is needed in the Sierra Nevada.



The sun beaks through the clouds over the snow covered Sierra Nevada near Echo Summit, Calif., Feb. 2, 2016. The Sierra Nevada provides critical water supply for California. (Rich Pedroncelli, AP)

Water Deeply: What is the current state of the health of the Sierra Nevada and how much does that depend on where you are in the state?

Jim Branham: It's safe to say it doesn't matter where you are in the region, their health is not good. We're facing some real challenges from forest health and forest resiliency. Having said that, the Southern Sierra is certainly feeling the brunt of the tree mortality issues.

Water Deeply: What are the biggest threats that are impacting health and resiliency in the Sierra?

Branham: The underlying condition is that in many places in the Sierra, and particularly on the lands that are publicly managed in the Sierra, we have badly overgrown forests.

It's probably impossible to point to any specific reason but certainly our effective fire suppression over the past few decades is a part of it. Fire used to play much more of a role in keeping the forest healthy and resilient and

keeping the stand, the tree distribution, to a level that was conducive to withstanding drought, disease or fire, whatever the case may be.

You overlay a drought on top of that, and that's where you end up with these massive amounts of tree mortality. Overlay all of that on a trend of a changing climate, and the data are pretty clear that in the Sierra Nevada, over time, we're going to see more precipitation fall as rain and less as snow. We're going to see steadily increasing temperatures, and those have very significant impacts on those threats, particularly from the temperature change perspective, particularly from a fire perspective.

Water Deeply: What would be characteristics of a healthy forest ecosystem that we should be trying to work towards?

Branham: I think we know enough to know that a healthy forest in the Sierra Nevada is a forest that has fewer trees than we have now, and more larger trees. You have a forest where you don't have an absolute closed canopy, which has a variety of adverse impacts, but you have openings and spacing and the more appropriate species mix for that particular place on the ground.

Also when you think of a healthy forest, we think of it as healthy watershed; you also have meadows that are functioning properly, and playing their role in the ecology, streams that are healthy, and you're not dealing with huge sedimentation or other pollutant issues.

Water Deeply: Can you explain a little bit more about meadows? Why are they so important to a healthy forest, and specifically a watershed?

Branham: There are a lot of meadows in the Sierra Nevada. They are our version, if you will, of wetlands that you would find in the coastal region. There's a lot of habitat value. One that is very significant is that meadows play a role that is similar to the snowpack in that they absorb water, they'll hold water, and so keeping water up in the system higher up, longer into the year, is important from a water supply, water management standpoint.

That's important for a variety of reasons, not the least of which could be things like flood control. You don't want all of the water coming out of the system earlier in the year, and remember that the infrastructure we have in place – the reservoirs, the dams, everything that's in place that captures the water that fuels California's agriculture and economy and meets the domestic needs – that system was built 50, 60 years ago.

It was put in place and has been operated based largely on historic models. We said, "This is what happens, so this what we can predict." But we're seeing different things happen now. I think, clearly the ability to hold the water up into the watershed as long as possible is going to become even more important as time goes on, and that's what meadows do.

Water Deeply: How did the Watershed Improvement Program come about?

Branham: We launched the Watershed Improvement Program last year with the United States Forest Service as our primary partner, they're the primary land manager in our region. Really it was the culmination of the fact that we'd all been doing a lot of work, doing the best we could, on a lot of fronts to restore our watersheds to health, but we really hadn't done very well of organizing ourselves and coordinating ourselves in a way that took that holistic view of what we were doing within the watershed and across the whole region. We just felt clearly articulating the benefits from having healthy watersheds, articulating the threats, challenges and risks that exists, and articulating the things that we think can be done to minimize the negative aspects, was important.

That's really what the program is. We've got a lot of partnerships with other governmental agencies, stakeholders, nonprofits, local governments, the private sector. We all are basically on the same page to a large extent on the problems and the solutions. The further you get into the weeds on any given solution, you end up not always being 100 percent on board, but I think we've got environmental groups and industry sitting in a room together, and finding lots of common ground because nobody feels good about what's happening out there.

Water Deeply: What kinds of projects are you doing?

Branham: Quite frankly, we're focusing that effort on trying to increase investment into the region. We don't feel that the level of investment in the Sierra has been appropriate, given all the benefits that California gets from the region. Anything we can do to try to increase investment is the top priority. We also think it's important to look at various policies and procedures and processes that are in place, that may be serving as constraints or impediments to doing restoration work.

We have the ability to use fire as our friend a lot more than we are. There are still places we can use prescribed fire, controlled fire, managed fire, to do what it historically did, but you have to be at the right place, at the right time, with all the right conditions. We also have a pretty strong air quality system in place in California that's done remarkable things for the state. I think we're seeing some unintended consequences because we know certain things about Sierra forests, and the one thing we know with complete certainty is there will be fire. We can either get the forest in good condition and use fire as our friend as much as possible, or we'll have things like the Rim Fire.

I think we're having great conversations now with the California Air Resources Board, with local air districts, talking about how we provide some more flexibility to do more. Yes, it's going to put smoke in the air, but it's putting smoke in the air that we can control. It's at the right time, and the right place, versus these large wildfires.

There are other processes we're addressing making sure that we're not having well-intentioned environmental laws actually inhibit some of the activities that we think there's wide agreement on needing to occur.

I think the opportunity is there to increase the investment and, really, working with our partners to say, "Department of Fish and Wildlife, if you've got money to go restore meadows, let's make sure that as you're looking at which meadows to restore; we're cognizant of what else is going on in that watershed."

Again, it's bringing people together, trying to integrate our various programs more closely, and trying to take that holistic approach to getting this worked out at a much greater pace than we currently are.

Tara Lohan

Tara Lohan is managing editor of Water Deeply. She's been writing about the confluence of water and energy issues for more than 15 years and spent seven years as a managing editor at AlterNet. She's the editor of two books on the global water crisis and her work has been published by the Nation, Salon, the American Prospect and others. She holds a bachelor's in environmental studies from Middlebury College and a master's in narrative journalism from the University of Oregon. She tweets from [@TaraLohan](#) and lives in San Francisco.