

Nonprofit eyes beavers to help fight wildfires

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Broadcasting

The Almeda fire swept through the southern Oregon communities of Phoenix and Talent in 2020, burning thousands of buildings and taking three lives. Part of the reason it was so devastating is that it burned right through the hearts of the towns along the Bear Creek Greenway, a greenbelt full of invasive blackberry bushes and other dried-out plants that acted as a wick.

Seven months after the fire, Jakob Shockey and Sarah Koenigsberg were searching the greenway for a furry critter that may have helped slow the flames.

"Oh, there's a bunch of nibbling over here," said Koenigsberg, pointing to teeth marks in the bark of a tree near the creek.

When you think of preventing wildfires, you probably think of Smokey Bear. But there's another animal that plays a much bigger role in fighting and recovering from fire: beavers.

Scientists have long considered the aquatic rodents to be "nature's engineers," because they reshape the ecosystem around them into wetlands. But recently scientists have made a new discovery: these beaver wetlands create emerald oases in an otherwise charred landscape, slowing down the spread of wildfires and providing refuges for animals to escape the flames.

Shockey and Koenigsberg help run a nonprofit called the Beaver Coalition and are part of a growing movement to transform the way people see the big-tailed rodents (before working with the Beaver Coalition, Koenigsberg directed a documentary about the movement called "The Beaver Believers").

"Many folks have been coming to beaver, as we're looking at water scarcity, and as we're looking at how do we most impactfully build resiliency into our landscape," said Shockey, a wildlife biologist and the executive director of the group. "So the Beaver Coalition sort of grew out of that, and our goal — why we exist — is to empower humans to partner with beaver."

If you're asking, "why would humans want to partner with beavers," one reason becomes clear as the pair looked down on a dam beavers built in downtown Phoenix not long before the fire. The pond it created, along with a smaller stormwater retention pond, appeared to have slowed the flames and may have even protected the nearby Phoenix Civic Center from burning, Shockey said.

And now the dam is filtering ash from the water for salmon and other animals living downstream.

"Just think about how much toxic sludge is now in this pond from the fire



Jakob Shockey floats a pond leveler out into the middle of the beaver pond in Phoenix. The device acts like a bathtub overflow drain, preventing the pond from growing any bigger, no matter how high the beaver builds the dam.

Photos by Brandon Swanson/Oregon Public Broadcasting

run off," said Koenigsberg, pointing at the stagnant gray-black water above the dam, and the clear water trickling from its base. "Look at how nasty it is (in the pond) and how clean it is (below the dam). You can't ask for better."

To understand what beavers have to do with fire, you first have to understand a little more about the animals themselves.

Beavers are awkward on land, making them easy pickings for predators. But they're graceful in water. So they build dams to create ponds and wetlands for self-protection.

"So if you ask someone to imagine a healthy stream or to draw a healthy stream, what they think of often is this little thin stream winding through the landscape," said Emily Fairfax, an assistant professor in the Environmental Science and Resource Management Program at California State University Channel Islands. "It's cool; it's clear. And that, unfortunately, in most cases is not what streams should be looking like."

They only look that way now because European settlers trapped millions of beavers and converted the wetlands they created across North America into farmland. Fairfax says the landscape used to look much different.

"A really healthy stream, especially in valleys, especially in sort of lowland areas, should be really messy," she said. "It should be splitting into a bunch of different directions and then coming back together. There should be so much brush and so much vegetation that it is challenging to walk through. There should be mud, there should be fish, there should be chaos all around you. And that's a healthy stream."

These messy beaver-created wetlands slow downstream flow, spreading water across the floodplain so that it seeps into the ground and irrigates valley



Beavers are known as 'nature's engineers' because of the way they reshape the landscape with dams and canals, turning simple streams into messy wetlands.

floors as well as any farmer, even in times of drought.

"The earth around that beaver pond is like a great big sponge: it's sucking up water," she said. "A wetland is developing. All this biodiversity is happening. It's great. It's beautiful."

And when fire moves through, these complex streams act much differently than simplified streams like Bear Creek. That's something Fairfax and her students have learned by poring over satellite images before and after fire.

"I ultimately found that these beaver-dammed areas experience about three times less burning than the areas that don't have beavers," she said. "So they're significantly more protected from fire. And when fire does go through them, it's much, much lower intensity. And sometimes it can't go through them at all. It's just too wet to burn."

Those wet areas also provide a safe place for other animals to take refuge from the flames. "And that's huge, especially if you think about some sensitive species where their whole habitat could be destroyed in a fire," Fairfax continued.

So if beavers can create fire breaks and wildlife refuges all over the landscape for free, you'd think people would want them everywhere. But they also flood roads, fields and yards

ecological and fire benefits of the pond.

The pond leveler is basically a long pipe that runs over the dam out to the middle of the pond, where a cage stops the beaver from clogging it. It functions similarly to the overflow drain in a bathtub.

"We want to hide this as far from the dam as we can," Shockey said, as he swam the cage with the end of the pipe out into the middle of the pond. "Beaver will obsess over looking for that leak (in the dam), and their leak in actuality will be 40 feet out into the pond."

Shockey and the Beaver Coalition have federal funding to install several such devices in the Rogue basin to help humans and beavers coexist.

Shockey's hope is that, if the beavers thrive in the pond, then their offspring will work their way back up the Bear Creek Greenway and reshape the landscape to make it more resilient to fire and drought in the future.

"We selfishly need the beaver's help," he said. "We don't have enough time or money or people to help bring this creek back to the place that needs to be, and beaver will do that for free. Beaver are the ecosystem engineer for this landscape. We can play at it, but they're the professionals. So we need to defer to the professionals."

Such was the case for Phoenix. The last time beavers moved in, the town trapped and removed them. So this time when they discovered beavers in the pond (since they're nocturnal, many beavers can go unnoticed until their dams start to grow), the city's public works supervisor, Matias Mendez, called Shockey to help Phoenix live with their new furry neighbors.

Mendez was concerned the dam could plug the culvert downstream and that the pond could grow large enough to flood the nearby highway and provide a drowning hazard if someone were to drive into it. So Shockey brought a team of volunteers to install a pond leveler — a device that removes the flood risk but lets the town keep the

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