



Chad and Toniann Churches with their son, Cyrus.

Heartprint Productions

Driven by climate change, fire reshapes the landscape

Forest policy, development influence fires

By MATTHEW BROWN
Associated Press

BILLINGS, Mont. — Wildfires have charred more than 10,000 square miles so far this year, an area larger than the state of Maryland, with large fires still burning in every Western state, including many that are not fully contained.

Whether sparked by lightning or humans, fire has long been a force shaping the landscape of the West.

Hot, dry winds can whip flames into firestorms that leave behind charred wastelands prone to erosion and mudslides. Other fires clear out underbrush, open the forest floor to sunlight and stimulate growth.

Government agencies in recent decades effectively upended that cycle of destruction and rebirth. Fire suppression policies allowed fuels to build up in many Western forests, making them more susceptible to major fires.

Those influences are magnified as development creeps ever deeper into forests and climate change brings hotter temperatures. Recent images of subdivisions ablaze thrust the power and ecological role of wildfires into the spotlight.

A look at the environmental effects of wildfires:

Smoke and ruin

Most immediately fire brings destruction.

Temperatures from extreme fires can top 2,000 degrees Fahrenheit — hot enough to kill all plant life, incinerate seeds hidden beneath the surface and bake the soil until it becomes impervious to rain.

The lifeless landscape becomes prone to severe erosion, fouling streams and riv-

ers with silt that kills fish and other aquatic life. Torrents of muddy debris following fires last year in Southern California killed 21 people and destroyed 129 homes.

U.S. Geological Survey scientists say the problem is getting worse as the area burned annually by wildfires increases. A study last year concluded sediment from erosion following fires would more than double by 2050 for about a third of western watersheds.

Smoke from this summer's Western wildfires — a potential health hazard for at-risk individuals — prompted the closure of Yosemite National Park for more than two weeks and drifted to the East Coast, according to NASA. Recent research says it also impacts climate change as small particles spiral into the upper atmosphere and interfere with the sun's rays.

Climate questions

Scientists broadly agree wildfires are getting bigger in North America and other parts of the world as the climate warms. But still emerging is how that change will alter the natural progression of fire and regrowth.

The time interval between wildfires in some locations is getting shorter, even as there's less moisture to help trees regrow. That means some forests burn, then never grow back, converting instead into shrub land more adapted to frequent fire, said Jonathan Thompson, a senior ecologist at Harvard University.

"They get stuck in this trap of repeated, high-severity fire," Thompson said. "Through time we'll see the California shrub land shifting north."

Similar shifts are being observed in Colorado, Wyoming's Yellowstone National Park and Glacier National Park in Montana, he said.

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Coast Guard couple inspired during son's leukemia treatment

Six months of chemotherapy

By JACK HEFFERNAN
The Daily Astorian

The Churches had mixed emotions when their first child, Cyrus, was born last year.

During Toniann Churches' pregnancy, they threw a gender reveal party. The family has a lot of girls, so they were excited to find out they were having a boy. Still, it was something new, and the Astoria couple's imagination ran wild whenever they held their newborn son.

"You start to re-evaluate your future, get a little excited and a little nervous," Chad Churches said. "You just start to dream. It, like, reignites your imagination, like, what are they going to be like when they grow up?"

That dream took a frightening turn about four months later when Cyrus was diagnosed with leukemia, prompting months of rigorous treatment and unusual living arrangements. For six energy-draining months, the new parents relied on the inspiration offered by their son, as well as some help from their Coast Guard peers.

'Hoping it was wrong'

As the Churches held their baby



Coast Guard

The Coast Guard stepped up to help one of its own.

son, they noticed something different. He had a low-grade fever for more than a week, his stomach was pale and he was crying more than usual.

"Even when you held him and stuff, he would just sit there and be really uncomfortable," Chad Churches said.

The Churches took Cyrus in for a blood test. They imagined a number of scenarios, but the true cause of their son's pain shocked them.

"I was kind of upset just because I was hoping it was wrong," Toniann Churches said. "Other people's

kids get leukemia. Not yours."

Cyrus and his parents spent most of the next six months at Doernbecher Children's Hospital in Portland. Stuck in a new environment as the disease progressed, the first month was the hardest, Chad Churches recalls.

"It was just constantly finding out worse information as it progressed," he said.

As Cyrus struggled to sleep while repeatedly vomiting, his parents took turns resting near him.

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'IT WAS OUR TOP PRIORITY TO HELP THAT FAMILY. IT WAS TOUGH BECAUSE THEY JUST WANTED THEIR SON TO BE BETTER.'

Lauren Walton | chief petty officer at Coast Guard Air Station Astoria



AP Photo/Eric Risberg

Standing rainwater pools where a Fountaingrove neighborhood home once stood before a wildfire in Santa Rosa, Calif.

Why did Mount St. Helens form to the west?

New research paper by Oregon State published

By KRISTIAN FODEN-VENCIL
Oregon Public Broadcasting

For years, scientists have wondered why Mount St. Helens is out of line with other volcanoes on the Pacific Northwest's Ring of Fire.

Oregon State University scientists think they now have the answer.

Oregon State geophysicist Adam Schultz and his team think a giant subsurface rock formation, about 25 miles in diameter, diverted magma and melted rock off the Ring of Fire's arc.

That formation, known as the Spirit Lake

batholith, pushed the magma westward.

"It seems like what we call the Spirit Lake batholith is probably the reason why Mount St. Helens actually pops up far to the west of where you would anticipate it to be," Schultz said.

Older imaging studies show the structure, density and temperature of what's under the mountain, and more recent use of magnetotelluric measurements — which show the Earth's subsurface electrical conductivity — reveal fluids like magma.

The Oregon State team said it layered the two types of images together and created a much clearer picture of what lies below. It's being published this week in the journal "Nature Geoscience."

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Oregon State University

Mount St. Helens is several miles west of where it might be expected to be when looking at the Ring of Fire.

