Old Flames: The Tangled History of Forest Fires, Wildlife, and People

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A yellow plastic sign stapled to a skinny black tree warned ENTERING BURN: STAY ON ROADS AND TRAILS. It was a classic June day in western Montana: 50 degrees and you judge how good the weather is by how hard the rain is beating against the windshield. I was in the passenger seat of a Jeep Grand Cherokee, and Richard Hutto, a professor emeritus at the University of Montana, was leading me into the heart of the Rice Ridge Fire burn area in the foothills of the Swan mountain range.

Nine months earlier, in September 2017, this burn was the nation's top firefighting priority during the second-most-expensive fire season on record. Rice Ridge

eventually consumed 160,000 acres of forest and cost the U.S. Forest Service $49 million to fight. Smoke levels in nearby Seeley Lake went off the charts (actually exceeding what the air quality sensors could measure). An evacuation order was issued, and the local high school had to move its classes to a nearby dude ranch.

“You couldn’t have asked for a better fire,” Hutto said, and as an ecologist he was serious. He drove on past the sign and into what he calls “nature’s best-kept secret,” a young burned forest.

In every direction bare trees reached up into the low gray sky, their naked branches pinwheeling off trunks as black as chainsaw oil. Yet on the ground, tiny starbursts of beargrass were already creeping out of fireproof stems, singed at the tips but otherwise brilliant green against the black soil. Off in the distance, a swath of burned trees swept down a valley and up the next slope, the red-needled edges forming huge paisleys on the green mountainside.

Severely burned forests can look barren, but beetles, birds, and other wildlife begin returning as soon as the flames go out. *Photo by Hugh Powell.*

Birds were everywhere. Western Tanagers chirruped and Western Wood-Pewees buzzed. A Mountain Bluebird the color of movie-star eyes gleamed from a jet-black

spar of larch. A Hermit Thrush sang, and everywhere woodpeckers—Hairy, Downy, American Three-toed, Northern Flicker—rattled, cackled, and whinnied.

There was one other splash of color: blue flagging tape tied around the black trees. It was there to mark areas slated for salvage logging, which is the industry term for cutting dead wood in order to capitalize on its economic value.

Here on this muddy Forest Service road, two conflicting views of fire were meeting head-on. One view, currently prevailing among society at large, regards Rice Ridge as a costly and tragic “megafire,” a catastrophe that endangered homes and destroyed valuable forest that would take decades to recover. If you buy this view—of burned forest as ruined forest—then salvage logging seems only prudent, a way to temper the losses the fire inflicted.

Because of increased sunshine and available nutrients, wildflowers grow abundantly in burned forests for the first decade or more after a fire.

But many fire ecologists have long had an alternate perspective on large, severe fires like Rice Ridge: that they are inevitable and largely unstoppable, like a hurricane. Far from destroying forests, these fires touch off a frenzy of ecological activity—a tumult of new plants, mushrooms, insects, amphibians, birds, and mammals—that’s unlike anything that happens in the quiet shade of a green forest.

“This is a habitat that’s like no other habitat on Planet Earth,” Hutto says, and salvage logging is just about the worst thing that could be done to it. “If you take the [burned] trees out, all these special things go away.”

It was exploring this dichotomy—wildfire as disaster versus wildfire as essential natural process—that drew me back out West last June, back into the burned forests I’d fallen in love with 20 years ago. Back then I was one of Hutto’s graduate students, and I studied the Black-backed Woodpecker, a bird that is intimately adapted to burned forests. I spent three years covered in soot and camping among the jet-black trees, watching the forest come back to life.

Today the fire season is longer than it was during my grad school days. The long-term trends show fire seasons are nearly three months longer than they were in the 1970s. And 100,000-acre megafires are burning more frequently. Yet little has changed in how the U.S. government approaches fire, besides the price tag. From 1985 to 1995 the U.S. spent just over $4 billion fighting fires; from 2008 to 2018 it spent nearly $20 billion.

Meanwhile, more homes are being built in harm’s way, in the spaces where towns and forest intermingle and where fires will eventually burn as surely as hurricanes will strike the Gulf Coast. More than 12.7 million new homes went up in this “wildland-urban interface” just between 1990 and 2010. And with each new fire, journalists and politicians repeat the same three misconceptions—about fuel accumulation, the need to suppress fire, and the need to salvage log—all built on the mistaken impression that fire is unnatural.

“You’d be hard-pressed to find any patch of forest in the Northern Rockies that isn’t in one stage or another of succession following a severe fire event,” Hutto says. “If you want to use [fire] funding to save a house from burning down, fine. That’s a disaster. But a fire burning out in the middle of nowhere is not a disaster.”

Back at Rice Ridge, we wandered off the roadside in search of an American Three-toed Woodpecker that was tattooing the tippy-top of a charred Douglas-fir. This was a stand-replacement or crown fire—the terrifying kind that leaps into the canopy, sends up walls of flame, and rips across the landscape. It’s precisely this most powerful, least tameable kind of fire that Hutto says people need to make peace with.

It only takes one visit to a burned forest to realize it’s much more than a pile of ash at the bottom of a charcoal grill. A burned forest is more like a bank vault with the door blown wide open. Fire knocks out a tree’s chemical defenses but barely touches its nutritious interior. Far from being dried husks, fire-killed trees stay so insulated you can still squeeze water out of the inner bark a year after a fire.

University of Montana professor emeritus Richard Hutto has been studying the ecology of wildfires since the 1980s. *Photo by Jeremy Roberts/Conservation Media.*

The burn area of the 160,000-acre Rice Ridge Fire displays the classic mosaic pattern that's created by forest fires in the West. Patches of green, brown, and black add to the landscape's habitat diversity in the years following the fire. Photo by Jeremy Roberts/Conservation Media.

With the bank vault open, the bugs come rushing in. One group of beetles uses special heat-sensing organs to colonize a forest fire before it even cools off; another type does the same thing by following smoke plumes. These are some of the most

stupendous beetles I've ever seen—some are glittering green-and-gold; some the color of cinders and highlighted with orange; others with black-and-white antennae three times as long as their bodies.

The beetles lay eggs, and their larvae tunnel through the tree eating everything in sight. Predatory beetles and parasitic wasps flood in to feed off the larvae, and the food web takes off from there.

Morel mushrooms come up in carpets, enough to fuel a ragtag foraging industry in burns that's worth up to $10 million annually. In some areas, boreal toads move in to breed in ponds warmed under the open canopy; and plants such as beargrass, fireweed, mariposa lilies, lupine, and geraniums spring up into the abundant sunshine.

This flush of food brings in woodpeckers, flycatchers, thrushes, swallows, and finches. To demonstrate, Hutto cocks an ear and gives a running commentary on what he hears:

Western Wood-Pewee: "It always amazes me. This is a cottonwood bottomland bird, and then it shows up in these fires, far away from where it 'ought' to be."

Tree Swallows: "Nothing, no other bird, likes it as severely burned as Tree Swallows. When it's toasty and completely black, they love it."

With abundant food, plentiful nest sites, and few predators, burned forests are an ideal habitat for Black-backed Woodpeckers. Black-backed Woodpeckers use burned forests for up to about eight years after a fire. *Photo by Jeremy Roberts/Conservation Media.*

Mountain Bluebirds: “If you had been standing here this time last year, I guarantee there would not have been a Mountain Bluebird here. They are all about burns. The higher the severity, the more of them you find.”

Nowadays Hutto can back up claims like these with piles of data from more than 16,000 monitoring sites throughout the Northern Rockies. But all his work began with a small paper published in *Conservation Biology*, on the famous 1988 Yellowstone fires, when 1.4 million acres in and out of the park burned in a single season.

His key realization was that birds don’t just make do with whatever’s left after a fire—they seek out burns for their unique mix of rich food supplies, abundant nest sites, and relative lack of predators. After visiting 34 burns in the first two years after the Yellowstone fires, he found 15 species that were nowhere more abundant in the Northern Rockies than in young burns. As if to prove his point, we saw 11 of these

Hutto says the Black-backed Woodpeckers are “As well camouflaged against burned trees as a ptarmigan is in the snow.” This male uses the fire-hardened snag to drum and proclaim his territory. *Photo by Jeremy Roberts/Conservation Media.*

Both the male and the female care for the chicks, which fledge after about 24 days. *Photo by Jeremy Roberts/Conservation Media.*

15 birds on our first day at Rice Ridge, including Olive-sided Flycatcher, Cassin's Finch, and Townsend's Solitaire.

Chief among these fire-adapted species is the Black-backed Woodpecker, which Hutto found in 78% of the burns he surveyed and almost nowhere else. In the Northern Rockies, he says, "they are as restricted to burns as a Belted Kingfisher is to rivers."

But Hutto cautions against focusing on a single species as a poster child for burn areas: "It's not about Black-backed Woodpeckers. They're an indicator. They're just whispering in my ear about the bigger issue, the need for natural fire in these mountains."

The larger point, he argued in a 2008 paper published in *Ecological Applications*, is that the abundance of life after a forest fire is no accident. If crown fires are an anomaly, a lapse of proper forest management, he asked, then how can there be so many examples of animals that over millennia have evolved ways to find and capitalize on them?

The United States got off on the wrong foot with fire back in 1910, during what is still the West's worst fire season on record. Over just two days in August, a complex of fires across Montana and Idaho burned 3 million acres and killed 78 firefighters.

In response, the U.S. Forest Service doubled down on firefighting, eventually enacting a policy goal of putting out all fires by 10 a.m. the day after they were spotted. In 1944 the Forest Service invented Smokey Bear, and Smokey began a campaign of pulling heartstrings, pointing fingers, and driving home a message that no fire is acceptable. It was well-intentioned, but it was disastrously successful in shaping the public's view of wildfire.

"We as a society only see [burned forest] as destroyed forest, because we've been conditioned to believe that forests should be green and they shouldn't change," says Tania Schoennagel, a fire scientist at the University of Colorado. "But that high-severity fire that burns like hell and is terrifying, that is business as usual for [many] forests."

Starting in the 1970s, studies of the comparatively gentle fires in Southwestern ponderosa pine softened Smokey's viewpoint somewhat, and a new conventional wisdom emerged: Understory burns are good, but severe fires are bad. Understory burns make forests healthy and safe by keeping fuels in check, or so the argument

goes, while severe fires are disasters that happen only because a century of fire suppression has allowed fuel to build up.

“The problem is [the public has] over-learned that story,” Schoennagel says, “because it’s so tractable and appealing, and they now see that story everywhere.”

Those dry ponderosa pine forests turned out to be a special case, not a general rule. They’re so dry that barely enough fuel can grow in a year to allow a fire to spread. In almost every other Western forest type, from mixed conifer to lodgepole pine to spruce-fir, the climate is cooler and moister. Plenty of fuel grows each year, but it takes a major drought to dry it out enough to burn. Before climate change, this happened every 50 to 200 years or so, depending on the forest type.

In other words, what fire scientists call a forest’s “fuel load” is not the main cause of large, unstoppable fires; it’s climate factors such as temperature, humidity, and especially wind. But weather is ephemeral and invisible, while thick underbrush is easy to see and photograph. So in wider society, the conversations are still all about fuels. From President George W. Bush’s Healthy Forests Initiative of 2003 straight through to California governor Gavin Newsom’s emergency declaration in 2019, the fixation on reducing fuels through thinning and prescribed burning spans decades and political parties.

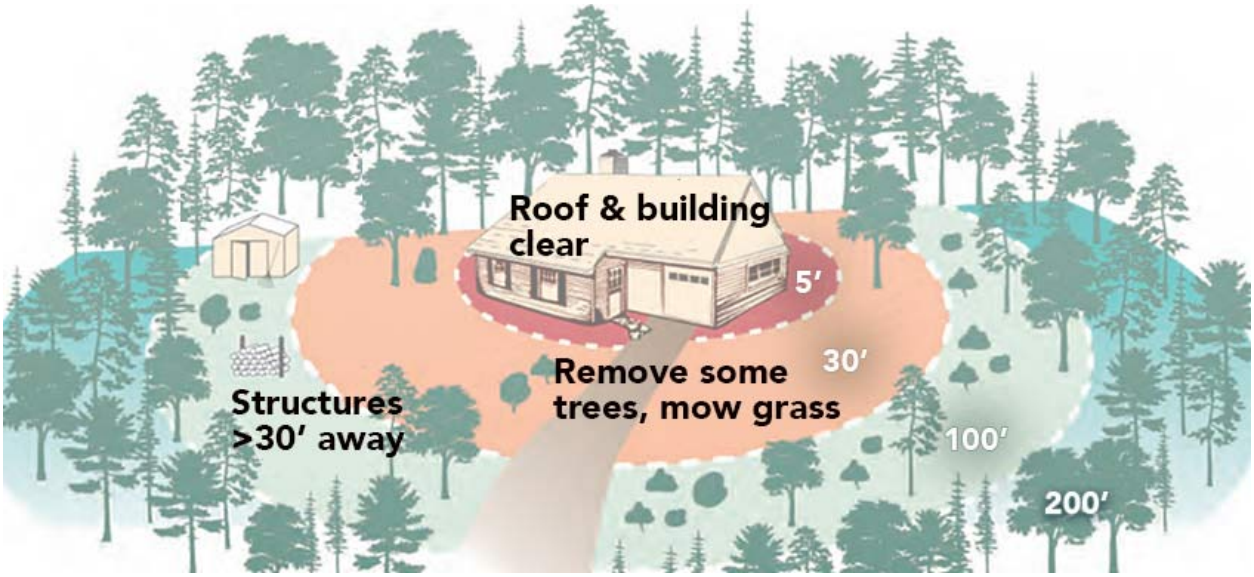
Large fires happen during periods of unusual drought and high wind. When those ingredients come together—as they have been doing increasingly with the effects of climate change—there’s almost always enough fuel to keep a fire going. In fact, because firefighters put out so many fires, it virtually guarantees that when fires do break out of control, it’s only when conditions are dry, windy, and primed for very dangerous, rapidly spreading fires—a phenomenon dubbed the “wildfire paradox” by three fire scientists in a 2014 paper published in *Proceedings of the National Academy of Sciences*.

“Lost is the legacy of smaller fires that likely burned outside extreme weather and fuel conditions and resulted in less severe impacts,” wrote Michael Dombeck, former chief of the U.S. Forest Service, in *Conservation Biology* in 2004, adding that “projects that reduce fuel loads but compromise the integrity of soil, water supplies, or watersheds will do more harm than good in the long run.”

While fire crews are extremely good at putting out small fires, at 1,000 acres or larger, all bets are off. Large fires cost $1 million per day to fight, and still they don’t go out until the wind changes or rain starts to fall, according to a report by the General Accounting Office. Worse, firefighters lose their lives in this uphill battle—an average of 17 deaths per year since 2000. And in light of the wildfire paradox, even fires they do control seem less like victories and more like postponements.

Of course, forest fires do pose a grave threat to people and property within the wildland-urban interface, giving fire managers plenty of incentive to throw everything they have at every fire. But long-term research by Jack Cohen, a researcher with the U.S. Forest Service's Fire Sciences Lab, suggests there are better ways to safeguard houses than taking the fight into the forest.

I tracked down a phone number for Cohen, who had practically vanished after retiring from the fire science lab. (He'd grown frustrated after many years of talking to reporters and policymakers while seeing more and more second homes built in flammable locales.) To my surprise, he returned my call.



Fire scientist Jack Cohen's research on the **Home Ignition Zone** laid the groundwork for safety recommendations for homeowners, like these from the Wisconsin Dept. of Natural Resources. The zone contains three regions: **5 feet:** Keep roof clear of leaves, needles, and other debris. Keep burnable materials from under and around all structures. Siding and decks should be constructed with fire-resistant material. **30 feet:** Remove all but scattered trees and keep grass mowed. **Over 30 feet:** Keep woodpiles and sheds 30 feet from structures. *Illustration from the Wisconsin DNR, used with permission.*

"Bottom line, home ignitions are determined by very, very local conditions," he said. Early in his career, he was puzzled to see houses survive near the edge of a fire, while homes a few blocks farther away burned to the ground. Homes that did burn down often were gone before the fire front even came close to the building. He realized, and subsequently proved in experiments, that walls of flame aren't what light homes on fire. It's firebrands—burning embers that get lofted on hot air and blown hundreds of yards downwind. These can lodge in a needle-choked gutter or a corner of a wooden deck and smolder for 20 minutes, like a curl of newspaper under a pile of charcoal.

Cohen's research led to the idea of safeguarding the "home ignition zone." He discovered that a set of fairly simple actions in a 100-foot-radius around a home can greatly improve its chance of surviving a forest fire. Homeowners can't stop

firebrands from landing on their houses, but they can move their woodpile, clear brush within 60 feet, sweep up fallen pine needles, clean gutters, and make sure they have a nonflammable roof and deck. In a 2000 study, Cohen found that actions such as these would result in a 90% chance of a house remaining unburned during a forest fire.

The work is “pretty much a once a year kind of thing,” Cohen says—and much more manageable than trying to keep the entire surrounding forest from burning. In 2014, he and two colleagues advocated for this kind of shift in thinking.

“Wildfires are inevitable,” they wrote, in *Proceedings of the National Academy of Sciences,* “but the destruction of homes, ecosystems, and lives is not.”

Hutto was tooling through a section of the Rice Ridge burn known as Morrell Creek, driving with his knee while pinching and zooming a fire map on a tablet. We rounded a corner and entered a stand of larger trees with tan splotches running up the black trunks, where flakes of bark had been knocked aside to reveal fresh bark beneath.

Peppering the splotches were dozens of neat, round holes, each one patiently drilled by a woodpecker and leading precisely to the former hiding place of a beetle larva. I tried it myself on a larch, peeling back a section of bark, and found an inch-long jewel beetle larva, still wriggling, with shreds of half-digested bark visible in its guts.

Hutto says the Black-backed Woodpeckers are “As well camouflaged against burned trees as a ptarmigan is in the snow." This male uses the fire-hardened snag to drum and proclaim his territory. *Photo by Jeremy Roberts/Conservation Media.*

Both the male and the female care for the chicks, which fledge after about 24 days. *Photo by Jeremy Roberts/Conservation Media.*

Moments later came a scolding, mewling sound, as if a wren was mugging a cat. That's the Black-backed Woodpecker's giveaway call. A glossy, blue-black male flew in carrying a larva as long as his bill, and dipped his head into his nest hole.

These birds are handsome in a classic, black-will-never-go-out-of-style way. This one had a military bearing with his martial yellow crown, a nearly all-black face with a white slash on the cheek, and fine gray barring on the flanks. He flew off into the black forest and almost disappeared.

"As well camouflaged against burned trees as a ptarmigan is in the snow," as Hutto likes to say.

Over the next hour we watched as male and female took turns carrying larvae to their young. The nest was a classic of the Black-backed Woodpecker style: low—just above head height—in a small, fire-hardened larch. On the lower edge of the nest entrance, the male had chipped out a neat beveled doorstep, now smudged a soft ash-gray from woodpecker tummies squeezing in and out all day. Nesting in such hard wood helps the chicks stay safe from predators such as woodpeckers, jays, bears, and squirrels. (It's even been suggested that their unusual three-toed feet are an adaptation to help them deliver more powerful thwacks of the bill when excavating flame-tempered trees.)

This area was prime real estate. We found an additional two American Three-toed Woodpecker nests within a hundred yards, and watched a female Tree Swallow visit the Black-backed nest. Lacking any excavatory abilities of her own, the swallow was leaning inside to check whether the cavity was free for the taking.

Next to one of the three-toed nests was another blue-flagged tree marking the edge of a salvage-logging plot. Hutto gave half a chuckle.

"That's what I always say, you want a model of where Black-backed Woodpecker abundance is? Show me your model of where you want to salvage log," he said. "I bet it's not that different."

He paused to clarify: "I'm not against cutting trees. This is not a tree-hugger thing. But let's just be smart about where we do it."

Instead of salvage logging, Hutto wants the Forest Service to think about ecotourism, as they already do when they provide maps and permits to morel pickers after fires. "Why not give out maps of where to go see Black-backed Woodpeckers?" he says. "Where's the most amazing wildflower show you're ever going to see in your life, and it's going to be going on for the next 10 years? They ought to be taking out ads in every bird-watching magazine in the country."

Hutto relishes throwing suggestions out of left field like this, but he acknowledges that forest supervisors have a harder line to walk. “The Lolo [National Forest] is probably the most progressive district in the nation,” he said. “But as soon as a fire burns, those letters are going to start pouring in demanding that you do some logging.”

U.S. Forest Service biologist Victoria Saab stands in an Oregon forest that was salvage logged following the Canyon Creek Fire in 2015. Saab studies whether salvage logging and bird habitat can be compatible in fragile postfire ecosystems. *Photo by Hugh Powell.*

While Hutto approaches fire policy and salvage logging with intensely logical arguments made from an academic remove, scientists in the U.S. Forest Service—such as research wildlife biologist Victoria Saab—have to consider real-world situations.

“Most of the time when a fire happens, salvage logging is considered,” Saab says, “so let’s try to learn what we can. If I thought it was going to end, I wouldn’t have put this study together.”

To see Saab’s study, I had driven overnight from Montana to the high-desert town of John Day, Oregon, where the 2015 Canyon Creek megafire burned 110,000 acres and destroyed 43 homes, despite the efforts of some 900 firefighters. She’s been

studying burned forests since 1994, when she became one of the first biologists to examine the effects of salvage logging on birds. Over the course of 11 years, working among 350,000 acres of burned forest in Idaho, she found some bird species did well in salvage logged plots—one of the highest nest densities ever recorded of Lewis's Woodpeckers, for instance. But Black-backed Woodpecker nests were rare in the logged areas, and more than five times more abundant in the intact plots.

Now, Saab is trying to refine that understanding: "We know Black-backed Woodpeckers will persist where you don't have any [salvage] logging," she says. "But can we have some logging and still have population persistence for Black-backed Woodpeckers?" (Her project is exploring similar questions for Lewis's and White-headed Woodpeckers.)

We were visiting one of the sites in her new study, where she's comparing three differing levels of logging against a control of no logging. Behind Saab loomed a minor mountain of logs that had been cut but never made it to the mill. A Common Nighthawk was buzzing in the sky, and a White-headed Woodpecker was bringing food to a youngster in a single snag left among the stumps.

These are the most fragile moments in fragile ecosystems, and to go in there with heavy machinery and remove logs is probably the most damaging thing you can do.~Tania Schoennagel

In separate discussions, Hutto, Saab, and Schoennagel had each stressed that salvage logging delivers no ecological benefits, just economic ones.

"These are the most fragile moments in fragile ecosystems, and to go in there with heavy machinery and remove logs is probably the most damaging thing you can do," Schoennagel said. "I can see why there might be an economic interest in salvage logging, but there's no argument that can be made that there's an ecological benefit."

"In the short term, it can create habitat for Lewis's that wouldn't be there till later, when trees start falling," Saab said. Fallen trees open up the airspace for these oddball woodpeckers, which do most of their foraging by catching insects in midair. "But eventually [in 10 to 30 years] those conditions would be created by the fire on its own."

Salvage logging doesn't improve the habitat, it just speeds up the disappearance of the burned forest.

Still, the U.S. Forest Service's motto is "Land of Many Uses," and one of the major uses is timber harvest. As long as burned forests are seen as lifeless areas, the monetary return of salvage logging will be an attractive option. In the first couple of years after a burn, salvage-logged timber is just as valuable as green timber, and the large trees can be very valuable. Because dead trees quickly degrade (the work of all those wood-boring beetles), environmental regulations are sometimes waived under emergency orders to speed up the logging process. And very large dead trees, which are far more valuable as wood than smaller trees, aren't always protected by the same regulations that cap the harvest of big live trees.

All told, salvage logging made up only about 11% of all the wood harvested on Forest Service land in the 2018 fiscal year. And all the logging on Forest Service land, burned or unburned, accounts for only about 10% of all the wood logged in the United States each year; the rest comes from private timber lands. If salvage logging is a drop in the bucket, Hutto had asked, back in Montana, then why do it at all?

"A burned forest isn't the first place you should cut, it's the last place," he said. "If it's about wood, let's look at the green forest. There's a billion acres of green forest that's not nearly as special as this forest right here."

Landscapes across the mountainous West are a patchwork of forest types—and in most cases, forest fire is the agent that creates those mosaics. *Section of the Rice Ridge fire, Montana, photo by Jeremy Roberts/Conservation Media.*

While the debates continue over how to handle postfire forests and whether to fight forest fires in the first place, climate change is upping the ante by drying out forests and making fire seasons longer.
“Ten years ago, scientists were very hedgey when talking about climate change,” Schoennagel told me. “Now it’s front and center.” In a 2017 *Proceedings of the National Academy of Sciences* paper, Schoennagel put this idea right into the title: “Adapt to More Wildfire in Western North American Forests as Climate Changes.”

The evolution in attitudes is apparent in the *Quadrennial Fire Review*, a joint publication of U.S. Forest Service Fire and Aviation Management and the Department of the Interior Office of Wildland Fire. The most recent one, published in 2015, went so far as to envision a change in philosophy “from war on fire to living with fire.”

The report even suggested, in very polite language, the possibility of adjusting Smokey Bear’s attitude. “Core messaging,” the report said, “would emphasize that fire is a natural, necessary, and productive occurrence.” (Back in 2000, I had briefly tried to promote a new sidekick for Smokey. I called him Smudgy the Black-backed Woodpecker, but he never caught on.)

Additionally, many Western communities have begun to encourage landowners to make their homes more fire resistant, using Cohen’s research as a jumping-off point. Two federal initiatives, FireWise and Fire Adapted Communities, help organize these public information campaigns and help homeowners, fire departments, and local authorities work together.

The goal is to get people to understand that they live next to a recurring natural hazard, not too different from living in a beach house during hurricane season. Instead of logging burned forests, why not meet timber needs by thinning the forests around towns and along predetermined evacuation routes, like the ones we already have for people fleeing hurricanes? That’s a step that could actually save lives when a crown fire does strike.

From the Canyon Creek burn I drove west to the city of Bend, which sits beneath a trio of 10,000-foot volcanoes known as the Three Sisters, to spend a day off with friends. In this adventure-sports town, we decided to skip all the mountain biking, trail running, sport climbing, river rafting, and fly-fishing to do something really spectacular: go hiking in a forest burned during the 2017 Milli Fire.

We wound lazily up the trail, my friends’ Australian shepherd, Taz, running up ahead and coming back to report on the situation. As we gained elevation, we moved out of Douglas-fir and lodgepole pine into a hushed stand of mountain hemlock, burned black but with a shock of red-singed needles still drifting gently onto the forest floor. A Townsend’s Solitaire was singing.

Farther still, we emerged onto a hillside of subalpine fir that had burned as severely as anything I've ever seen. This was one of those fully gothic stands, where the trunks are powdery black and the ground is an unrelenting gray.

We were in the Three Sisters Wilderness by now, where logging isn't allowed due to Wilderness Act protections. This was that rare scene in today's outdoors where nothing was the matter. The forest was already pursuing its own course of action. Trees that had spent the last two centuries storing up the energy of the sun were about to turn it all loose again in one great years-long exhale, and push life—beetles, woodpeckers, bluebirds—out of their sturdy bodies one last time.

A bird skittered its nails on the bark of a fir. There was some tentative pecking, and a pause to listen for beetles. A flash of soft, gray-barred flanks, a flash of yellow. Almost too appropriately, it was a Black-backed Woodpecker. It turned its back to me and disappeared.

I thought of Hutto, walking along the road at Rice Ridge, falling silent as he reflected on his 30 years of research in burned forests.

"Basically, it's just a magical place," he had told me. "That's the bottom line."