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Cannabis has a carbon problem

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With a waiting list for new homes, construction can't keep up with demand in the Cadence subdivision in Mesa, Arizona. **Roberto (Bear) Guerra / HCN**

Know the West.

High Country News is an independent, reader-supported nonprofit 501(c)(3) media organization that covers the important issues and stories that define the Western U.S. Our mission is to inform and inspire people to act on behalf of the West's diverse natural and human communities. High Country News (ISSN/0191/5657) publishes monthly, 12 issues per year, from 119 Grand Ave., Paonia, CO 81428. Periodicals, postage paid at Paonia, CO, and other post offices. POSTMASTER: Send address changes to High Country News, Box 1090, Paonia, CO 81428. All rights to publication of articles in this issue are reserved. See hcn.org for submission guidelines. Subscriptions to HCN are $37 a year, $47 for institutions: 800-905-1155, hcn.org. For editorial comments or questions, write High Country News, P.O. Box 1090, Paonia, CO 81428 or editor@hcn.org, or call 970-527-4898.

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EDITOR'S NOTE

Let us walk together

WHEN I WAS YOUNG my dad often took me to the woods. He is a person who believes in hugging trees — and not in a metaphorical way. If a tree was too big to fully embrace, he'd stretch out his arms and press his body, head turned to one side, against the trunk of some old-growth behemoth. Other times he'd pause and administer a love pat and a greeting. *Hello, old cedar. You're a nice big tree.* I grew up feeling that trees, and all of nature, were part of our family, that we were our best selves when we were among them.

In science class, I learned that we are *actually* related — that humans share genes with all living organisms on Earth — and that our fates are entwined. Humans depend on nature — physiologically and, I would argue, spiritually. This publication, now in its 51st year, was created in response to that insight, call it conservation, or practicing restraint: the idea that physical spaces and their nonhuman inhabitants need safeguarding, so that our love and appetites don't spoil it for others, whether those here in the present moment or those still to come. *HCN* was created to celebrate those places, and also to expose misuse and wrongdoing, to hold those to account who don't act in good faith.

One thing I've learned from years in journalism is that issues are always more complicated than they appear — rarely black-and-white, more often prismatic, accounting for a range of beliefs, orientations and experiences. We have a right to nature, but *we* who? And *nature* where? And what does that right entail? Many of us also believe that nature has its own rights, irrespective of human endeavors. These rights — both of and to nature — are intersectional and multicultural, extending to all humans and creatures and ecosystems. They exist in the tiny, out-of-the-way hamlets that dot the rural West as well as in its suburbs and cities.

As I assume editorship of this venerable publication, I want to assure readers that *HCN* will always be focused on the rich and varied open spaces of the Western U.S., and that it will continue to report on human health and the urban environment, on communities large and small trying to do right by the land. As a human and an ecological family, we face great challenges: megadroughts and mega-fires, global pandemics and localized cancer clusters, rooting out hate and navigating toward equity.

Here in the West, all these issues intermingle and intersect in ways both heartening and troubling. In this issue, you'll hear about an Oregon hotel that's become a refuge for people who lost homes to wildfires, and the challenges of mitigating fire in an Idaho national forest; about suburban Phoenix's groundwater crisis, and an effort to enhance food security in Alaska Native communities.

I grew up in California and am now raising a son here. We have evacuated our small city twice in four years due to wildfires. Here, in the traditional territory of the Chumash peoples, our forests are threatened by a warming climate, and our water future is uncertain. Here, as elsewhere, the pace of change is accelerating. Now, more than ever, our fates are bound together, regardless of race or nationality, religion or creed, whether we're two-legged or four-legged, winged or scaled, or glorious old-growth cedar. Here on Earth, here in the West, in our communities, wherever they may be, let's walk with grace toward that future, taking care of each other and the land that sustains us.

Jennifer Sahn, editor-in-chief

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FEATURE

The Fire Next Time 32

In central Idaho, a community debates how to prevent wildfires from burning through towns.

BY CARL SEGERSTROM | PHOTOS BY REBECCA STUMPF

ON THE COVER
A prescribed burn runs through the Salmon-Challis National Forest on a ridge above the town of Salmon, Idaho, in early May. Prescribed burns are one of the tools forest managers use to help ward off catastrophic wildfires.
Rebecca Stumpf / HCN

Trees near Cougar Point Campground in Idaho's Salmon-Challis National Forest are marked with blue spray paint for a timber sale to take place this year *(above)*. **Rebecca Stumpf / HCN**

After last year's Labor Day fires burned thousands of homes in Oregon's Rogue Valley, Alma Alvarez and her three kids, including Anthony, shown here, bounced between more hotel rooms than they could count. Now, they've finally settled in a converted motel room in Medford, Oregon, funded by a new state program to house wildfire survivors *(right)*.
Brandon Yadegari Moreno / HCN

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REPORTAGE

Hotels for those left unhoused by wildfires 12

As climate change ratchets up wildfire intensity, an Oregon program provides a step toward finding a new home.

BY HANNA MERZBACH | FILM STILLS BY BRANDON YADEGARI MORENO

REFLECTION & REVIEW

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High Country News is dedicated to independent journalism, informed debate and discourse in the public interest. We welcome letters through digital media and the post. Send us a letter, find us on social media, or email us at editor@hcn.org.

ATASCOSA HIGHLANDS

I just read "The Mountain Islands in the Desert Sea" (May 2021). It's well-written and has nice photos, but the theme is grossly exaggerated. Sycamore Canyon is one of the best-documented local areas in Arizona: Botanists have visited and collected there for a century or so. In the SEINet database, there are 3,665 records of plant collections from within a 5-kilometer radius of Sycamore Canyon. Not so superficial, please.

Tom Van Devender, director of biodiversity programs, Greater Good Charities
Tucson, Arizona

MONTANA PASSENGER RAIL

The possibility of restoring rail passenger service to the former Northern Pacific line in Montana has remained a dream for over 40 years ("Montana counties band together to reinvigorate passenger rail," May 2021). I'm not saying it couldn't be done, but the logistical challenges to making it a reality have multiplied in the four decades since Amtrak canceled the route. The deteriorated roadbed and previously eliminated service routes' track remain in place, but would require hundreds of millions of dollars in reconstruction to meet passenger train standards again. How much financial effort and political capital is the state willing to expend to make it happen?

Thomas Moran
Whitefish, Montana

LOS ANGELES RIVER'S ANGLERS

Miles W. Griffis makes good points about the unintended consequences of the changes in river management in Los Angeles that will further displace the displaced ("The invisible anglers of the Los Angeles River," May 2021). The push-pull of water management in LA that seeks to control, or eliminate, residential/urban runoff should also be explored. Other than during storm events, most of the LA River's water comes from treatment facilities and runoff. Control the runoff, and you starve the river of water. How do you make the river a centerpiece of your new development plan when you're cutting off its water supply?

Larry Freilich
Bishop, California

WHAT GUN-BUYING FRENZY?

I don't think the headline "Americans go on a gun-buying frenzy" (May 2021) is accurate. About 15% of Americans (best estimate is 25-35 million) own all the guns, with each owner holding an average of five. Most Americans neither buy nor use guns.

Rusty Austin
Rancho Mirage, California

CHANGES

In the publisher's note in the May issue, you state that you "cover the West's thorniest issues and gravitate without hesitation toward difficult conversations." I'd like to suggest that this was true in the past, but it's not always true today.

You've made it clear that some of the major changes you've made over the past couple years are intended to bring in whole new groups of readers. But these groups likely have multiple media sources to choose from, unlike traditional Interior West subscribers like me, who sometimes get angry but stay with you because we have few alternative sources for some of the content you provide.

I have one simple request: Be honest about who you are today, preferably with a discussion on why you feel you need to ignore some important stories.

Neil Snyder
Great Falls, Montana

UNRECOGNIZED

I found the article about the Chinook Indian Nation interesting and enlightening ("Unrecognized," April 2021). I totally sympathize. We were thrown off our land 200 years ago, and we're still trying to get it back. Of course, the usurpers claim it's their land, but not only did they not even exist when we inhabited the area, their religion didn't exist either.

The Duwamish Tribe has been trying to get recognized for just as long. Chief Seattle, after whom the largest city in the Northwest was named, was Duwamish, yet the federal government won't recognize his tribe! It's the same story — other tribes are still fighting for recognition.

Lynn Gottlieb
Seattle, Washington

GROWING PAINS

Kudos to the citizens of McCall, Idaho, for pushing back on the development swap ("Growing pains," April 2021). We have already lost more than half our wildlife in the past few decades, and one of the many ways we're killing them is by developing more and more of their habitat to accommodate our continuous population growth, when we're already overpopulated. If we don't knock this off, there's not going to be much left in another couple decades. To have any chance at all of saving our planet and its diversity of life, we absolutely must refuse to develop green fields, or there will be no hope at all.

Julie Smith
Golden, Colorado

DID JAMES PLYMELL NEED TO DIE?

Thank you for the excellent article about James Plymell ("Did James Plymell need to die?" March 2021). I am so deeply moved that you wrote this story. I found it very upsetting myself and wrote a little piece for the local newspaper. To see that someone else took up the story makes me feel not so alone.

Jenny Saarloos
Corvallis, Oregon

CORRECTION

In "The Mountain Islands in the Desert Sea" (May 2021), we wrote that the survey of the region began when the University of Arizona Herbarium decided to make a catalog for future study. In fact, the project was independently conceived and executed. The story also stated that the elegant trogons (*Trogon elegans*) had been exiled to the highlands by climate change. Though the birds have historically used the area for breeding, climate change is extending the period of time that they spend in the temperate Atascosa Highlands. We also misidentified the *Stachys coccinea* (scarlet betony) plant specimen in a photo caption. We regret the errors.

Eva Dawn Burk stands on the bank of the Tanana River in late April in her home village of Nenana, Alaska. Burk is a graduate student at the University of Alaska Fairbanks, who is developing biomass-heated greenhouses for rural Native communities.

WHAT WORKS

The Native-led initiative that could spur an agricultural revolution in Alaska

A grassroots project to build biomass-heated greenhouses and train Native farmers aims to alleviate food insecurity in the communities most affected by it.

BY MAX GRAHAM | PHOTOS BY BRIAN ADAMS

WHEN EVA DAWN BURK first saw Calypso Farm and Ecology Center in 2019, she felt enchanted. Calypso is an educational farm tucked away in a boreal forest in Ester, Alaska, near Fairbanks. To Burk, it looked like a subarctic Eden, encompassing vegetable and flower gardens, greenhouses, goats, sheep, honeybees, a nature trail and more. In non-pandemic summers, the property teems with local kids and aspiring farmers who converge on the terraced hillside for hands-on education.

Calypso reminded Burk, 38, who is Denaakk'e and Lower Tanana Athabascan from the villages of Nenana and Manley Hot Springs, of her family's traditional fish camp in the Alaskan Interior, where she spent childhood summers. "I just felt like I was home," Burk said. "(Calypso) really spoke to my heart."

When Burk was still young, though, her family drifted away from its traditions. As fish stocks dropped and the cost of living rose, they stopped going to fish camp. Burk studied engineering in college and, in 2007, found a stable job in the oil and gas industry at Arctic Slope Regional Corporation. But after she had a series of revelatory dreams — first of an oil spill, then of a visit from her departed grandmothers — and heard elders discussing threats to traditional food sources, Burk committed herself to advocating for tribal food sovereignty.

A few months after her first visit to Calypso, Burk became a graduate student at the University of Alaska Fairbanks, where she currently researches the link between health and traditional food practices. In 2020, Burk received the Indigenous Communities Fellowship from the Massachusetts Institute of Technology to develop a business model for implementing biomass-heated (or wood-fired) greenhouses in rural Native villages. The greenhouses will grow fresh produce year-round while also creating local jobs and mitigating wildfire risk.

Now, Burk is partnering with Calypso to promote local food production and combat food insecurity in Alaska Native communities. The initiative involves building partnerships with tribes to teach local tribal

The driveway leading to Calypso Farm in late April as the last of the winter's snow melts *(top)*.

A student-led strawberry-growing project inside the greenhouse at the Tok School. The biomass-heated greenhouse grows enough produce to feed the district's students year-round *(above)*.

Susan Willstrud, co-founder of Calypso Farm, waters seedlings in late April *(right)*.

members, particularly youth, about agriculture and traditional knowledge. The project is still in its infancy, but Burk hopes to help spur an agricultural revolution in rural Native villages, where food costs are exorbitant and fresh produce is hard to come by.

Alaska Native communities face numerous challenges to food security. Many communities are accessible only by boat or plane, and some lack grocery stores altogether. The residents of Rampart, a small Athabascan village on the Yukon River, have to order groceries from Fairbanks, delivered by plane at 49 cents per pound plus tax, or else travel there to shop — a $202 round-trip flight, a five-hour trip by boat and truck, or a four-and-a-half-hour drive overland. Sometimes orders are delayed due to weather, or because the delivery plane is full, said Brooke Woods, chair of the Yukon River Inter-Tribal Fish Commission, who is from Rampart. "You're getting strawberries that are molded," Woods said. "And you're just throwing them away in front of an elder."

Indigenous families that depend on traditional foods, such as salmon and moose, have to contend with rapidly shifting ecosystems and declining wild food sources, largely due, according to Indigenous leaders as well as several studies, to climate change. Perhaps the biggest food challenge is the dizzying system of joint wildlife management among Alaskan tribes and the state and federal governments. In 2020, the Inuit Circumpolar Council reported that Alaskan Inuit "recognized the lack of decision-making power and management authority to be the greatest threat to Inuit food security." Last summer, during a pandemic-related food crisis, the Tlingit village of Kake had to get federal approval before tribal members could hunt on the land around their community, as *High Country News* reported.

Despite the clear and unique obstacles to food security for many families, a 2018 review in the *International Journal of Circumpolar Health* found that "studies that estimate the prevalence of food insecurity in remote Alaska Native communities ... are virtually absent from the literature." The limited and outdated data available indicates that about 19% of the Alaska Native population — 25% in rural areas

(continued on page 41)

How ‘sustainable’ is California’s groundwater sustainability act?

Doubts swirl around the plan’s rollout.

BY NICK BOWLIN

BENEATH THE ALMOND and citrus fields of the San Joaquin Valley lies an enormous system of aquifers that feeds some of the world’s most productive farmland. Hundreds of miles north and east, along the Nevada border, is the Surprise Valley, a remote high-desert region undergirded by cone-shaped hollows of sediment that hold deposits of water. Both of these water systems, along with every other groundwater basin in California — a whopping 515 entities — have been asked by the state to create individually tailored plans to manage their water use more sustainably. In scale and ambition, California’s Sustainable Groundwater Management Act (SGMA) has few parallels. And the work becomes increasingly urgent as the climate crisis makes water shortages more severe.

Passed in 2014, SGMA is a complicated law that addresses what appears to be a straightforward problem: California doesn’t have enough groundwater. For decades, water users have taken out more than they put back in, with little statewide oversight. SGMA changes all that by drawing boundaries around the state’s groundwater basins (some, but not all, had been previously defined and locally regulated) and requiring each one to create a local regulatory body and its own sustainability plan. These agencies must work with myriad stakeholders — public water systems, Indigenous nations, domestic and municipal well users and historically disadvantaged communities, as well as the ecosystems themselves.

Basins listed as critically overused had to submit plans to the state Department of Water Resources (DWR) by 2020. Those defined as high or medium priorities are submitting plans right now, with a deadline of Jan. 31, 2022. At that point, about 98% of the groundwater within SGMA’s purview — which serves 25 million people — will have active plans. Each local entity has 20 years to prove that it is sustainably managing local groundwater.

SGMA is already having an impact. In Borrego Springs, a small town in Southern California, local stakeholders — including large agricultural water users, vacation resort owners and the area’s water district — recently agreed to cut pumped groundwater use by 74% by 2040, *The Desert Sun* reported. This is how SGMA is supposed to work, said Fran Pavley, a former chair of the Senate’s Natural Resources and Water Committee: Local agencies tailor plans to each basin’s hydrological specifics and quirks, but true agency lies with the local stakeholders. “That’s the brilliance of it,” Pavley said. “You come up with your own plan and you have to submit it. You have to do right by it, and if you don’t, the state will do it for you.”

This emphasis on local expertise points to SGMA’s possibilities — and its potential pitfalls — especially when it comes to deciding what sustainable water management means. Each management body has wide discretion to define sustainability — and the path to sustainability by 2040 — for its particular basin. That’s not to say that SGMA doesn’t make demands: Each plan must include things like a list of water users, historic water conditions and future projections based on land use and climate models, as well as metrics for measuring success. SGMA also identifies undesirable outcomes, such as chronically low groundwater levels, poor water quality and impacts to connected systems of surface water. Melissa Rohde, a groundwater scientist with The Nature Conservancy, summed up the approach this way: “We’re not going to define sustainability, but we know what it isn’t.”

This, according to Rohde, makes it difficult to determine how the state will judge sustainability basin-by-basin. DWR, which is reviewing the available plans, has the authority to reject any it deems unlikely to achieve sustainability, though on what grounds remains unclear. None of its decisions are public yet. This approach has potentially serious impacts. Take, for example, an extensive study by the UC Davis Center for Regional Change that analyzed groundwater plans for nearly all the “critically over-drafted” basins submitted to the state in 2020. Thousands of small wells, the kind that serve households, are at risk of going dry because the lowest legally permitted depth for the top of the aquifer falls below where many domestic wells currently reach. And drilling deeper wells is expensive. According to the study, this problem is especially acute in the San Joaquin Valley, the heart of California’s agricultural sector, which is a significant groundwater user. Many of the at-risk wells serve low-income and majority-Hispanic farmworker communities.

Then there’s the issue of SGMA’s breadth. The law actually leaves out quite a lot of water. It applies to “alluvial” basins — water stored in deposits of sediment, in other words. But it does not apply to brackish groundwater, which often sits below alluvial basins and can be treated and used. It also doesn’t govern water stored in fractured hard-rock and volcanic aquifers, which are distinct from alluvial basins. This a problem, because these forms of storage hold the majority of the state’s groundwater, and their exemption from SGMA leaves 40% of its wells unregulated and vulnerable to over-pumping, according to a study by The Nature Conservancy and Stanford University’s Water in the West Center. “Because SGMA says that it regulates ‘all groundwater basins in the state,’ most of the public reasonably assumes that the problem of groundwater management in California has been solved,” the study states. “Unfortunately, this is not the case.”

REPORTAGE

Tribes unveil landmark plan on missing and murdered Indigenous people

The Confederated Salish and Kootenai Tribes provide a blueprint for other tribal nations.

BY JESSICA DOUGLAS

TWO YEARS AGO, on a February evening, Ellie Bundy attended a tribal working group in Arlee, Montana, on the Flathead Indian Reservation. Surrounded by local and tribal law enforcement, tribal members and families, Bundy listened as people told stories about loved ones or community members who had gone missing. "What if that were my daughter?" Bundy said. "We say that a lot, but really, what if it were my daughter? What if it were my sister? What if it were my cousins? It is a visual you just can't get out of your head." The meeting was one of four hosted by the Confederated Salish and Kootenai Tribes to encourage discussion and come up with local community responses to the epidemic of missing and murdered Indigenous people.

Bundy is now a councilwoman for the Salish and Kootenai, as well as the presiding officer of the Montana Missing Indigenous Persons Task Force. For the past five months, she and other Indigenous officials have participated in a series of working groups with federal, state and local law enforcement and community organizations. On April 1, at a press conference at the tribal headquarters in Pablo, Montana, the Salish and Kootenai joined the U.S. Attorney's Office for the District of Montana and the Federal Bureau of Investigation in announcing the completion of the first Tribal Community Response Plan to the crisis of missing and murdered Indigenous people.

As the first plan of its kind to be developed, it will serve as a model that tribal governments across Indian Country can adapt to meet their own specific needs. It marks a critical milestone in the effort to resolve the crisis, something that advocates say must be led by tribal nations and supported by the federal government. The new plan comes at a unique time nationally, after the passage of federal legislation, including Savanna's Act and the pending renewal of the Violence Against Women Act. Interior Secretary Deb Haaland has also created a new unit in the Bureau of Indian Affairs to specifically investigate crimes involving missing and murdered Indigenous people.

AS OF APRIL, there were 166 active missing person cases in Montana alone. Indigenous people

account for 48 of these, or about 29%, despite comprising only 6% of the state's population. But prosecuting crimes involving acts of violence — including murder, rape and kidnapping — committed against Indigenous people is difficult. More than 96% of such crimes are committed by non-Indigenous people, but because of the complex web of federal, state and tribal laws and jurisdictions, tribes have long lacked the authority to prosecute non-Indigenous people who commit crimes on tribal land. Instead, it's up to federal prosecutors, who often decline to prosecute: In 2017, 37% of the cases presented to federal prosecutors in Indian Country were declined. This leaves many Indigenous victims and survivors faced with a wide disparity in justice.

The Salish and Kootenai tribal plan focuses on four areas of response: law enforcement, victims services, community outreach and public communications. It includes a shared file system that will enable agencies to assist law enforcement when a missing person case arises. It also standardizes response protocol across the 10 different law enforcement agencies within the Flathead Indian Reservation. While the shared file system is not new or unique to law enforcement, it is new to cases involving missing and murdered Indigenous people. Previously, the agencies had to communicate through email or the National Crime Information Center database.

Terry Wade, executive assistant director of the Criminal, Cyber, Response, and Services Branch at the FBI, said that in the past, when a missing person case was filed, a lack of communication between agencies with overlapping jurisdiction would hamper progress. Tribal communities, particularly in the West, are different from the metropolitan areas where the FBI usually works. The FBI can provide resources, personnel and expertise, but it lacks something essential — local knowledge and a relationship with the community. Tribal governments and law enforcement have those longtime relationships, along with a genuine knowledge of the people and the terrain — both of which are necessary when it comes to creating a response plan for any nation whose lands cover a vast territory.

The Confederated Tribes' plan also includes the creation of a liaison to facilitate communication between the families of missing persons and law enforcement. Families often complain that they do not feel heard or do not receive important information when communicating with law enforcement during a missing person case. Bundy said the position is necessary for keeping families in the loop and identifying the specific resources that they might need — whether it's counseling, social services or tribal health services, or something as basic as missing person posters.

The response plan, which was created over the past five months, was part of a series of legislative and executive actions. When then-Attorney General William Barr visited the Flathead Indian Reservation in November 2019, he announced the Missing and Murdered Indigenous Persons Initiative, which placed 11 coordinators in U.S. attorney's offices across the country to develop special protocols for law enforcement. During the same week, President Donald Trump signed an executive order to establish Operation Lady Justice, a presidential task force on missing and murdered Indigenous people. Almost a year later, Congress passed the Not Invisible Act and Savanna's Act, both of which aim to strengthen data collection and increase coordination across tribal and law enforcement agencies. One month after that, in December of 2020, the MMIP coordinator for Montana, Ernie Wayland, worked with the Confederated Salish and Kootenai Tribes to launch the development of the first tribal community response plan. The Chippewa Cree Tribe of Rocky Boy, Montana, is already following their example and developing its own plan.

Paula Julian, a senior policy specialist for the National Indigenous Women's Resource Center, said the plan is an important step forward in addressing violence against Indigenous women. The Indigenous-led nonprofit is dedicated to ending violence against Indigenous women and children by advocating for the restoration of Indigenous protections and the reform of non-Indigenous systems. Violence against Indigenous women is inextricably linked to the colonization and genocide of Indigenous people. By restoring tribal governments' authority to respond and protect their communities, the plan strengthens tribal sovereignty and marks a clear change in the way federal, state and local institutions and agencies have historically worked with tribes.

"(This work) is for people like Jarmain, it's for people like Savanna, for Hanna and for Kaysera," Bundy said, naming Indigenous women who were either missing or had been murdered in Montana and North Dakota. "It was really about remembering all of these young ladies whose lives were cut short, or they're still missing and their families are still suffering. That's why we do this, and that's why it's getting so much attention nationally. That's why this plan is important. I just never want to lose sight of that."

A crowd listens to speakers during the Missing and Murdered Indigenous Women National Day of Awareness event held at the University of Montana on May 5, 2021 (*opposite*).

Ellie Bundy, councilwoman for the Salish and Kootenai and the presiding officer of the Montana Missing Indigenous Persons Task Force, poses for a portrait in front of a MMIP themed quilt made by Shoni Maulding (*below*). **Tailyr Irvine / HCN**

REPORTAGE

Hotels for those left unhoused by wildfires

As climate change ratchets up wildfire intensity, an Oregon program provides a step toward home.

BY HANNA MERZBACH
FILM STILLS BY BRANDON YADEGARI MORENO

DEEP IN THE densely forested foothills of southern Oregon, near the town of Butte Falls, Lanette and Steve Martin lived with their son and his family — until last year, when a wildfire chased them away from their home. As embers the size of charcoal briquettes landed on their front deck, the retired couple and their family jumped into their cars, leaving behind five chickens and a cat. "If we'd waited another 10 minutes, we would have been engulfed in flames," Steve Martin said.

That same day, Sept. 8, 2020, an urban fire fueled by hot, dry weather and strong winds tore through the nearby towns of Talent and Phoenix, in the Rogue Valley. Alma Alvarez, a migrant worker, was working about 15 miles away when the fire began raging toward Phoenix, where her two younger children, aged 10 and 13, were home alone. Alvarez rushed back to find the neighborhood already in flames. The family escaped with the kids' birth certificates and their cat, but everything else was gone. That night, they slept in their car. "All we would think about was the fire and if it could come get us in our sleep," Alvarez said recently, speaking in Spanish. The next night, they checked into a hotel, the first of many where they would stay over the months to come.

The conflagrations, part of what were later labeled the Labor Day fires, killed three people and displaced roughly 8,000 in southern Oregon's Jackson County. In mid-April, after bouncing between temporary homes for more than seven months, both Alvarez's family and the Martins finally landed in the same place: the Redwood Inn in Medford, Oregon. This was no coincidence. The motel is part of Project Turnkey, a $65 million statewide initiative to convert hotels and motels into free housing for survivors of the September 2020 fires as well as other people experiencing homelessness. For Alvarez and the Martins, Project Turnkey offered much-needed stability — and a step toward a more permanent home.

SITUATED ON A BUSY street lined with inexpensive motels, the Redwood Inn is one of as many as 20 motels that Oregon plans to buy by the end of June. Collectively, they could shelter up to 1,000 households. Project Turnkey is modeled on a similar program in California that began last summer. Cities and nonprofits have long

rented hotel rooms for unhoused people, but states actually buying hotels is something new, triggered by the COVID-19 pandemic and the need for socially distanced shelters. Ernesto Fonseca, who leads Hacienda Community Development Corporation (CDC), an Oregon housing organization that serves Latino communities, said supporting Project Turnkey was a "no-brainer"; it's a relatively quick and cheap way to provide emergency shelter and housing. "(But) it's also not a permanent solution," he said.

The state is putting up the money to buy the buildings, but local organizations have to run them — and cobble together the funds to do so. Rogue Retreat, a nonprofit, and the city of Medford received $2.55 million to buy the 47-unit Redwood Inn, which is prioritizing wildfire survivors. Later, the motel will house members of the general homeless population, who will pay a small rent. But for now, local and state grants, along with Federal Emergency Management Agency (FEMA) reimbursements, are paying the Redwood Inn's estimated $91,000 monthly operational cost.

When the Martins pulled into the motel's parking lot on April 12, they let out a sigh of relief. As a handful of new residents lingered outside, ready to move in, the Martins explained that their move-in date had been repeatedly delayed. Just that morning, the state had informed them that they could have one of the first eight rooms that were ready.

Inside the seating area of a makeshift lobby, Rogue Retreat staff members told them about a program that can connect residents with permanent housing, while emphasizing that there's no time limit on their motel stay. Steve Martin seemed on the verge of tears as he signed the paperwork: "Our next option was the back of my pickup," he told the staff.

The couple passed around a phone with pictures of their former home, a four-bedroom house that held them and their son's family of three. Lanette Martin called it her "Shangri-La." For five years, they were caretakers of the 40-acre property, where their power came from solar panels and their water came from mountain springs. In exchange, the Martins — who live on a fixed income — paid just $700 per month in rent. Now, the couple can't find even a studio apartment for that price: In 2020, rents and home values skyrocketed amid high demand driven by the fires and an influx of out-of-state arrivals during the pandemic. The Martins lived in several friends' homes after the fires, but had to leave the latest one when it sold in less than 24 hours — a typical occurrence nowadays in Jackson County, where Medford is located.

From 2013 to 2017, nearly a third of Jackson County residents were severely rent-burdened, spending more than 50% of their monthly income on rent, according to Oregon Housing and Community Services. And that was before the September 2020 wildfires exacerbated the county's already acute affordable housing shortage. Of the nearly 2,500 homes destroyed in Jackson County, 60% were mobile homes.

The Martins lacked renters' insurance and hadn't applied for FEMA assistance. Their son's

(continued on page 31)

As part of Oregon's Project Turnkey program, the Redwood Inn Motel in Medford opened its doors in April to families who lost their homes to the state's devastating wildfires last year *(opposite)*.

Alma Alvarez and her three children were among the first families to move into the Redwood Inn *(below)*.

Home for Now

Accompanying this story is a short film, *Home for Now*, that provides an intimate look into the lives of Lanette and Steve Martin and of Alma Alvarez and her family, as the two families move into the Redwood Inn this spring, after losing their homes in the wildfires that swept across southern Oregon last year. This film is the first in a series of forthcoming documentary projects produced by Brandon Yadegari Moreno as part of *HCN*'s Climate Justice Fellowship, with support from the Society of Environmental Journalists.

To view the film, visit hcn.org/home-for-now or, using your smartphone's camera app, scan the code below:

REPORTAGE

The fight for racial justice in Montana, one year out

From Havre to Bozeman, the push for equity persists.

BY SURYA MILNER

LAST YEAR IN LATE MAY, Melody Bernard was driving home to the Rocky Boy's Reservation near Havre in north-central Montana, after a trip to Wisconsin. When she stopped in Minneapolis, she found a flood of people taking to the streets, protesting the murder of George Floyd. Bernard, a former tribal judge and police officer of the Chippewa Cree Tribe, was shaken by the video of Floyd's death; she joined the march. When she returned to Havre, she went on Facebook to organize something similar. She and her daughter bought a megaphone and printed out photos of Floyd at Walmart. But when they went to a local park on the appointed day, they were the only ones there.

Within a few minutes, however, others began to arrive. Dorian Miles, a football player for Montana State University Northern, had also been thinking about organizing a protest; his uncle had been killed by police in Maryland three years previously. Driving through town that day, he noticed a group of middle school kids on the sidewalk holding up signs. And then, turning the corner, he saw dozens more, including Bernard and her daughter. He began to cry.

In Havre, where Native Americans comprise 12% of the city's population of 9,700, Floyd's death echoed a local story: In 2009, A.J. Longsoldier, an 18-year-old from the Fort Belknap Reservation, died from alcohol withdrawal syndrome after four days in a jail cell. The Montana Human Rights Commission blamed his death on "discriminatory indifference." The protesters in Havre, over 100 of them, held up signs showing his face as well as Floyd's, Breonna Taylor's and others. In front of the police department, the crowd knelt for eight minutes, their fists in the air. "That day, I developed so much respect for the people in this town," said Miles, who is Black. "To not be around my family at that time — I felt so alone. I remember crying to these complete strangers who felt like family. It felt like every person was holding me up from falling."

Last summer, similar protests sprang up across Montana, in places like Helena and Butte, Billings and Bozeman, Missoula and Great Falls. Some, like Havre's, lasted for weeks and drew hundreds; others were one-time events, some with more than a thousand participants.

In Havre, the movement is quieter now than it was last summer. Bernard finds hope in organizing events like "Blackout Racism," an annual Fourth of July 5K run and fireworks show designed to foster community between police officers and local residents. And Miles, now a rising junior at Montana State University Northern, is considering running for student body president next year to bridge the racial divide he sees between athletes and other students. For Bernard and Miles, this is a start. "I will walk 4,000 miles if I can just be at peace and know that we are making a change," Miles said. "We can set the example (so others) understand that, bro, it doesn't matter if you're Black, if you're white, if you're Mexican, if you're this or that — if you get pulled over, you don't need to lose your life."

THIS YEAR, on April 8, Daunte Wright, a Black man, was shot by police during a traffic stop in a Minneapolis suburb. A few days later, nearly 300 people assembled in a Bozeman park under a cloudy sky. Large standalone speakers blared Outkast's upbeat "Rosa Parks" while the crowd — largely white, socially distanced and masked — floated cardboard signs painted with fists and slogans like "affordable housing not police." The park was also the site of demonstrations the previous year, when a newly formed group called Bozeman United for Racial Justice rallied nearly 3,000 people to protest George Floyd's murder and push to defund the local police.

In Gallatin County, where Bozeman is located, Black people were arrested for marijuana possession at 18 times the rate of white people between 2010 and 2018, according to the ACLU. Nationally, Indigenous people as a group are the most likely to be killed by law enforcement. Bozeman organizer and Gros Ventre tribal member TW Bradley said the fight for Black justice and Indigenous justice is the same battle: "The institutions and the society we've built have been formulated in order to stop the agency of Indigenous people and Black people. When it comes to the fight for racial justice, it comes pretty naturally that we can empathize and share that weight of fighting for the same rights."

Bozeman United for Racial Justice is a multiracial coalition of Black, Indigenous, Hispanic and Asian American Bozemanites whose main goal is to reallocate the city's $9.4 million police budget to community-

Melody Bernard, who organized a racial justice protest last year in Havre, with her daughter, Megan Whitford, a student at Montana State University, at their home in Box Elder, Montana (*left*).

Dorian Miles stands on the football field at Montana State University Northern in Havre, Montana, where he is majoring in integrated health sciences with a minor in psychology (*below*).

Lauren Grabelle / HCN

oriented, mutual aid-style relief. The group hopes to elect at least one candidate to the City Commission in November. It's currently focused on hosting rallies and "defund the police" trainings, but in August it plans to start endorsing candidates, canvassing and phone banking. (It has not yet announced its preferred candidates.) Because the City Commission controls the city budget, the group hopes the newly elected officials will funnel more money into housing, homelessness, education and substance use prevention.

Bozeman United for Racial Justice formed quickly last summer in the wake of Floyd's death. It felt like "one big experiment," said Benjamin Finnegan, a local Korean American grassroots organizer in Bozeman, since the city had never been home to broad-reaching racial justice organizing. But with the help of the nonprofit Montana Racial Equity Project, student activists at Montana State University and local organizers from the Sunrise Movement, an international youth climate action group, the newly formed initiative was able to galvanize thousands.

Racial justice organizers can accomplish more if they've already built some momentum and discussed policy changes with city leaders, said Matthew Clair, a Stanford sociologist who studies social injustice and the criminal legal system. Since last summer, he's seen major cities, including Austin, Texas; Portland, Oregon; Seattle and Los Angeles, successfully trim their police budgets. Simultaneously, crisis prevention programs like CAHOOTS in Eugene, Oregon, an alternative to traditional policing focused on de-escalation, have inspired new programs in Denver, Albuquerque, New Mexico, and Oakland, California, as well as Portland. "There's been an uptick of practical strategies that have gained traction," Clair said. "If there's another unfortunate incident of (police) violence, we might see now even more cities having organizing capacity on the ground, because of what happened this past spring and summer."

While Montana has yet to see such concrete shifts, activists have begun to envision what racial justice might look like for their own communities. For some, that means commencing a lengthy battle to reallocate funding from local law enforcement to housing, education and drug abuse prevention. For others, it's as simple — and difficult — as keeping public discourse around racial equity alive. "The way we attack it is to get as close to it as we can," Miles said. "Talk about it. Rip the bandage off. Rip it off. At the end of the day, no Black person is going to ask you to apologize for the actions of 300 or 400 years ago. … The only thing we want to talk about is privilege and injustice, and how you may not relate, but how you can still fight for it."

A Stop Asian Hate rally in Los Angeles, California's Koreatown in March attracted hundreds of participants. **Myung J. Chun / Los Angeles Times via Getty Images**

REPORTAGE

Driven by a need for self-defense, Asian Americans are arming up

Once denied their Second Amendment rights, Asians in the West are heading to gun shops in droves.

BY WUFEI YU

ON A FRIDAY EVENING in late March, in southeast Portland's Jade District, about a thousand people gathered to mourn the most recent mass shooting. The previous week, a man shot and killed eight people — including six Asian women — in the metropolitan area of Atlanta, Georgia. The tragedy enraged the Asian community, which has faced an escalation in harassment ever since the COVID-19 pandemic began. People at the rally held signs that said "hate is a virus" and "not your model minority." Snow, a 20-something Vietnamese American who preferred not to give their real name, citing possible retaliation, was among them, wearing a Glock 19 handgun on their hip.

"Some people were uncomfortable at first" about seeing the weapon at the rally, Snow said. "But it was a decision (I) made to ensure the safety of our people." Snow purchased the gun online last October in response to recent attacks on Asian people in America.

Tens of thousands of Asian Americans, motivated by self-defense, bought their first guns over the past year, according to the National Shooting Sports Foundation, an industry trade association. A survey by the organization, which tracks background checks and gun purchases through retailers, estimated a 43% jump in sales to Asians nationwide in the first half of 2020. (Few surveys track Asian American gun ownership; on forms and in databases they are often relegated to an "other" category.) Recently, *High Country News* contacted 20 gun shops in the West to hear their perspective on this trend. Of those that replied, nine confirmed that they'd seen an uptick in sales to customers of East and Southeast Asian descent.

HISTORICALLY, ASIAN AMERICANS have rarely been able to buy guns in the West. In 1923, despite decades of violence against Chinese immigrants in San Francisco's Chinatown, California passed a law prohibiting non-citizens from possessing concealable firearms. As a result, many Chinese people, barred from citizenship by the Chinese Exclusion Act, could not own firearms. The bill also allowed police officials to determine who could receive a concealed weapon permit. In a *San Francisco Chronicle* article published at the time, the law's proponents argued that the ban would help disarm Latino and Chinese residents, whom they depicted as criminals, using racist stereotypes. "Where the officials have the discretion in terms of gun licensing, there's a very clear historic pattern of discrimination," said Robert Cottrol, a legal history and civil rights professor at George Washington University in Washington, D.C. The passage of the Civil Rights Act in 1964, however, made it harder for police to discriminate, undermining the 1923 statute.

Second Amendment rights would come into play 28 years later during the 1992 Los Angeles riots, after police officers were acquitted of charges stemming from the beating of a Black motorist named Rodney King. Redlining had forced low-income Korean immigrants, African Americans and Latinos to live in the same neighborhoods for decades. Interracial tensions boiled over during the riots, and thousands of Korean-owned businesses were destroyed. A small number of mom-and-pop shops survived because armed Korean residents stood on their roofs to deter rioters. That became a pivotal moment for the Asian American community, inspiring more people to practice their Second Amendment rights.

When the novel coronavirus started spreading across the world, Asian Americans and Asian immigrants once again became the target of violence. Then-President Donald

Trump fueled rising xenophobia, using racist terms like "Chinese virus" and "Kung Flu," and Asian people were accosted, spat on and even stabbed. Since March 2020, more than 3,795 hate incidents have been reported, around half of them in the Western United States and over 40% in California, according to the nonprofit group Stop AAPI Hate.

In response, many Asian Americans have purchased their first firearms. Ray Kim, the founder of a Facebook group called Asian American Gun Owners of California, said that his group has seen a rise in membership as a result of the community's gun-buying boom. Over the past 15 months, the online community has grown from fewer than 500 people to more than 2,100. "I don't think a gun takes care of all the problems," Kim said. "But at least if there's an image of Asians being armed, it could deter some crime."

Kim, who is a second-generation Korean American, moved from Los Angeles to Texas for a Ph.D. program in 2015. The West Texas gun community welcomed him and taught him how to handle a firearm safely. Kim said that life in the Texas Panhandle came as a "culture shock" after the racist violence he'd experienced in California. In 2017, he returned to Los Angeles to take care of his aging parents. Two years later, he started the Facebook group to connect with other Asian gun owners shortly after seeing a shocking video: Korean grandmothers being attacked in LA's Koreatown. The incident rattled him. "It was all on camera," he said. "I just kept on thinking that … an armed society is a polite society. And that sounds much better than a society that attacks Asians."

On social media, Kim often posts about community safety and advises members to be "first responders" to guard their families and properties. When Vicha Ratanapakdee, an 84-year-old Thai man in San Francisco, died after being shoved to the ground in January, Kim changed the profile photo on the group's Facebook page to a popular drawing of the man. The violent incidents inspired Peter Juang, a new member, to buy a gun. "Elderlies are getting beaten up like hotcakes, and people feel it's OK to come up and yell at others. That's what keeps me up at night," said Juang, a Taiwanese American who lives in a rural area near Chandler, Arizona. In February 2020, he bought a pistol, the first firearm he had ever owned, to protect his family. "Now that you know things can happen, I'll bring my everyday carry with me when I go out," he said.

Given the influx of new customers, firearms stores and training facilities are starting to cater to Asian Americans. Two Seattle area gun shops — Lynnwood Gun and Ammunition and Low Price Guns — told *High Country News* that they had hired Chinese- and Japanese-speaking international college students as part-time assistants. In early April, Edmon Muradyan, the owner of Marshall Security Training Academy & Range in Compton, California, asked friends who spoke Korean and Mandarin to help teach 20 Asian Americans — people who ranged in age from their 20s to their 60s — to handle a handgun. It was the first all-Asian American class he'd given in over two decades of instruction. "Society's way of treating them right now is unfortunate and making them become gun owners — responsible gun owners," Muradyan said.

All of the firearm owners interviewed for this story view guns as an equalizer that can help advance their rights and protect their communities. But in a political climate that attaches Second Amendment rights to a largely white right-wing faction and sees gun control as part of a liberal agenda, they often find themselves caught in the middle of the ideological spectrum. Many did not want to speak on the record, preferring to keep a low profile.

Still, gun owners like Juang feel that they need firearms to protect their families from potential racist violence and oppression. "If China ever decided to start a war with the United States … I'd be very worried about anyone who looks of Chinese descent. Because you could easily slide into what happened," Juang said, referring to the Japanese American internment camps during World War II. With a gun, he said, "at least I can buy some time for my wife and kids to get out."

"I don't think a gun takes care of all the problems. But at least if there's an image of Asians being armed, it could deter some crime."

THE LATEST

Border unbound

Backstory

In 2010, Rick Desautel, an Arrow Lakes Band tribal member and Sinixt descendant, crossed the border to Canada and shot an elk without a license. Desautel then turned himself in — all part of a concerted effort to reaffirm his U.S.-based band's right to hunt on its historic territory in British Columbia. The resulting decade-long litigation challenged the Canadian government's 1956 assertion that the Sinixt were "extinct" ("How an Arrow Lakes elk hunt became a case of tribal recognition," 10/28/19).

Followup

In April, the Supreme Court of Canada affirmed three lower courts' decisions in favor of Desautel, writing that the Sinixt had never ceded their lands or rights. The majority wrote that denying such rights to Indigenous people "who were forced to move out of Canada would risk perpetuating the historical injustice suffered by Aboriginal peoples at the hands of Europeans." The precedent-setting ruling has implications for other trans-boundary tribes, indicating that Indigenous people need not be residents of a country in order to have their rights in it recognized. —Anna V. Smith

Cannabis has a carbon problem

The burgeoning marijuana industry gobbles up electricity.

BY JONATHAN THOMPSON

LOCATION, LOCATION, LOCATION: That's the deciding factor when it comes to the size of marijuana cultivation's carbon footprint, according to a new study out of Colorado State University.

The paper's authors, led by Hailey Summers, confirmed previous findings that indoor pot-growing gobbles up huge amounts of electricity and can cause high greenhouse gas emissions. Their research also quantifies emission differences from place to place: A kilogram of cannabis cultivated in Long Beach, California, for example, has a smaller carbon footprint than one grown in Denver, Colorado.

The reason? More energy is required to keep the indoor temperature and humidity at optimum levels in very cold or hot places than in more temperate areas. And California's grid is virtually coal-free, while the power grid in Colorado and other Interior West states relies heavily on coal and natural gas, both of which emit large amounts of greenhouse gases.

Since it's against federal law to transport marijuana across state lines, it's impossible to move all cultivation to California. But there are other pathways to greener ganja-growing, including upgrading to more efficient heating and cooling systems and switching out the typical high-pressure sodium lights for LEDs. Moving away from the standard windowless warehouses to greenhouses or even outdoor cultivation would also significantly cut emissions, though it raises security issues and could result in smaller yields and inconsistent potency.

Of course, there is another way to reduce cannabis' carbon footprint: Decarbonize the grid by phasing out all fossil-fueled power generation. That would do more than clean up the marijuana industry; it would impact everything else that relies on that grid, from illuminating houses and recharging electric vehicles to powering your computer and watching old Grateful Dead concerts on YouTube — not to mention keeping that Sara Lee cheesecake cold for the minute the munchies kick in.

Electricity use breakdown for a typical indoor cannabis cultivation operation

Lighting **38%**

Air conditioning **21%**

CO_2 injection **2%**

Space heating **5%**

Drying **1%**

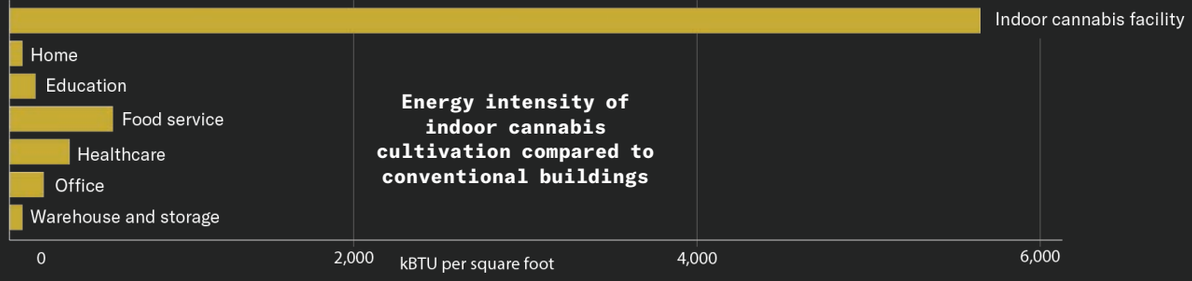
Ventilation and dehumidification **30%**

Water pumping **3%**

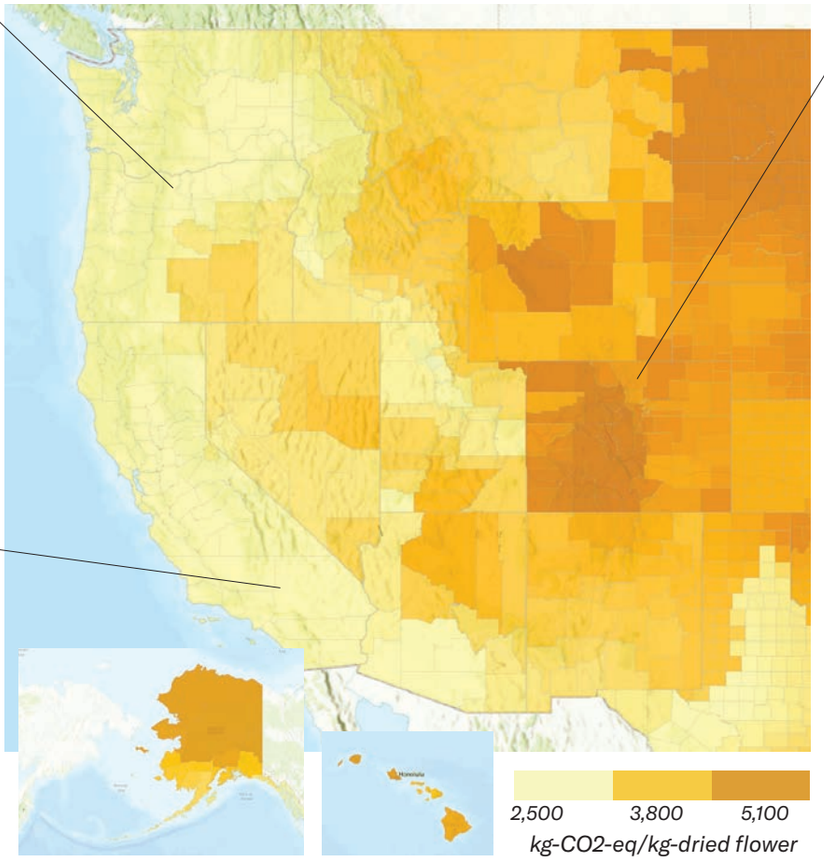
A cannabis producer in Hillsboro, Oregon. **Daniel Berman**

18 pints
Amount of beer that could be produced with the amount of energy used to produce one marijuana cigarette.

22 miles
Distance one could drive in a Prius on the amount of energy used to produce a one-gram joint.



Carbon footprint from growing one kilogram of cannabis



OREGON

7
Number of power outages attributed to grow operations on Portland's grid during the first summer after recreational marijuana was legalized in Oregon.

$52,000
Estimated annual utility bill savings a Portland marijuana cultivator realized by installing high-efficiency HVAC systems in its 36,000-square-foot facility. The equipment reduced carbon emissions by about 380 tons annually.

CALIFORNIA

2,283 Kilograms of carbon emissions from growing one kilogram of cannabis in Long Beach, California. Kaneohe Bay, Hawaii, respectively, the lowest and highest in the United States. Power generation in Hawaii is mostly fueled by oil.

COLORADO

733,200 mwh
Estimated yearly electricity consumption by Colorado's marijuana cultivators.

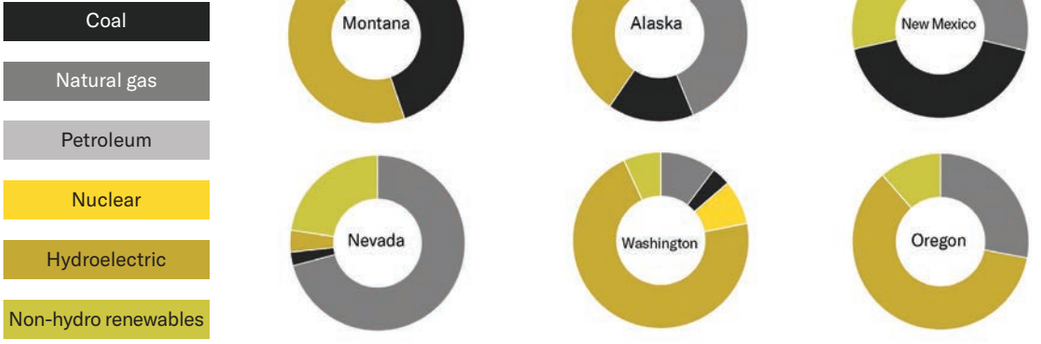
76,400
Estimated number of Colorado households that amount of energy could power for a year.

41,808 kwh
Monthly electricity consumption by a 5,000-square-foot grow facility in Boulder County. The average Colorado home uses about 800 kilowatt hours per month.

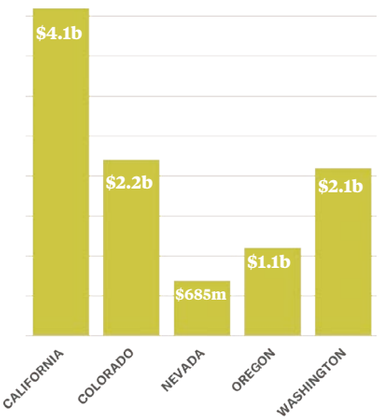
19,000 kwh; $1,400
Amount of electricity saved, and reduction in utility bill, per month when a marijuana cultivator in Denver switched from HPS lights to LED lights.

Energy mix for Western marijuana-friendly states

The carbon intensity of growing cannabis depends largely on the carbon intensity of the grid in that particular place. The greater the percentage of fossil fuels used to generate power, the bigger the carbon footprint.



Cannabis sales revenue by state



Big Cannabis, Big Cash

$70.4 million
Amount of tax revenue generated by the marijuana industry in Denver, Colorado, in 2020.

$468.8 million; $415.3 million
Washington state tax revenue collected from cannabis sales and alcohol sales, respectively, in 2020.

$2.19 billion; $387.5 million
Gross marijuana sales in Colorado during 2020; associated taxes and fees generated for the state.

$147.9 million
Severance tax revenue generated in Colorado from oil and gas, coal and other minerals in 2020.

$1.03 billion
Total tax revenue generated in California from cannabis sales in 2020.

Sources: Summers, H.M., Sproul, E. & Quinn, J.C. The Greenhouse Gas Emissions of Indoor Cannabis Production in the United States. Nature Sustainability (2021); Energy Use by the Indoor Cannabis Industry: Inconvenient Truths for Producers, Consumers, and Policymakers by Evan Mills; Denver Department of Health & Environment; Colorado Department of Revenue; Energy Information Administration; Energy Consumption Model for Indoor Cannabis Cultivation Facility by Nafeesa Mehboob et al. **Infographic design: Luna Anna Archey / HCN**

REPORTAGE

Uncertain water supply

How rapid growth in Arizona's largest urban area is betting against the odds.

BY SARAH TORY | PHOTOS BY ROBERTO (BEAR) GUERRA

THE ENTRANCE to the Cadence subdivision, a new housing development on the outskirts of Mesa, Arizona, itself a suburb of Phoenix, is a long paved road lined with towering palm trees. Built by Lennar, the nation's largest homebuilder, Cadence offers a plethora of amenities: an indoor fitness center, a game room, tennis, volleyball, basketball and bocce courts, an event center called Mix, a coffee shop called Stir, a spa, two swimming pools and two chute-style waterslides.

"Isn't it beautiful?" asked Megan Santana, whose own home is currently under construction, as we walked toward the back of the Flourish Community Center, which has a large green lawn. "You feel like you're on an island resort."

Santana, who is 34, moved to the Phoenix area last October from Texas with her 9-year-old son, Malachi, and her business partner, Alyssa Bell. Tanned and fit, with long dark hair that hangs in loose curls, Santana grew up in rural Virginia but moved to Florida when she was 22, hoping to settle down and enjoy the warm weather. Instead, the yearly hurricane season caused her so much stress that she moved to Dallas. From a natural disaster standpoint, though, Dallas was not much better: The city, which lies in a so-called Tornado Alley, experiences frequent severe storms. Santana began researching states that had few natural disasters, and Arizona turned up at the top of the list.

Six months ago, Santana joined the hundreds of thousands of people who have moved to the greater Phoenix area in recent years looking for affordable homes, sunshine and warm winters. The pandemic has only intensified that trend, with home sales increasing by nearly 12 percent in 2020. There's just one problem: The region doesn't appear to have enough water for all the planned growth.

In 2017, Phoenix became the fifth-largest city in the U.S., a sprawling "megalopolis" of almost 5 million people that's also known as the Valley of the Sun. A few outlying "mega-burbs" like Buckeye and Goodyear to Phoenix's west and Queen Creek to the east have annexed large amounts of land and are themselves some of the nation's fastest-growing cities.

By 2040, the region's population is expected to reach more than 7 million, despite its limited and shrinking water supply.

Even though the effects of climate change are intensifying throughout the Southwest, people keep moving here — to the hottest, driest part of the country. Unlike wildfires or hurricanes, a diminishing water supply is a slow-moving, mostly invisible crisis. But if current growth rates continue, in roughly a decade it will be impossible to ignore. That raises questions about whether policies and attitudes that encourage maximum growth are sustainable. Many of the area's rapidly expanding suburbs lack access to the water necessary for all the growth they are planning, said Mark Holmes, Goodyear's water resources manager from 2012 to 2018. Unless they can develop significant new water supplies, he said, "the alternative is something they don't want to think about."

"TO LIVE IN A CITY named after a bird that periodically self-immolates itself is to invite scrutiny," writes lawyer, academic and Phoenix resident Grady Gammage Jr. in his 2016 book *The Future of the Suburban City*. And sociologist Andrew Ross dubbed Phoenix the "least sustainable city on earth" in his 2011 book *Bird on Fire*.

There's truth to these assessments: The Valley of the Sun receives less than 8 inches of rainfall each year. Most of the valley's water supply comes from the winter snowpack in distant mountains, which melts and flows through a vast system of dams, reservoirs and canals. Two major watersheds are involved: The Central Arizona Project (CAP) diverts water from the Colorado River, 300 miles away, and the Salt River Project (SRP) draws from the Salt and Verde rivers, north of Phoenix. There are two other water sources: groundwater, which is pumped from the aquifer below, and a small but growing amount of treated wastewater, accounting for an estimated 5% of the water supply statewide. Every municipality has a different mix of water supplies with varying degrees of reliability. Urban Phoenix, for instance, has diversified and carefully managed water supplies, while many of the newer outer-lying suburbs are much more dependent on a single source, according to the City of Phoenix Water Services Department.

In the early years of Phoenix's growth after World War II (when air conditioning became widely available) much of its water supply came from pumping groundwater. But rapid declines in aquifer levels in the 1960s and 1970s pushed state lawmakers to pass the Groundwater Management Act in 1980. The law created "Active Management Areas," which required developers and municipal water providers to obtain permits from the Arizona Department of Water Resources confirming that they had 100 years of "assured water supply" for new homes.

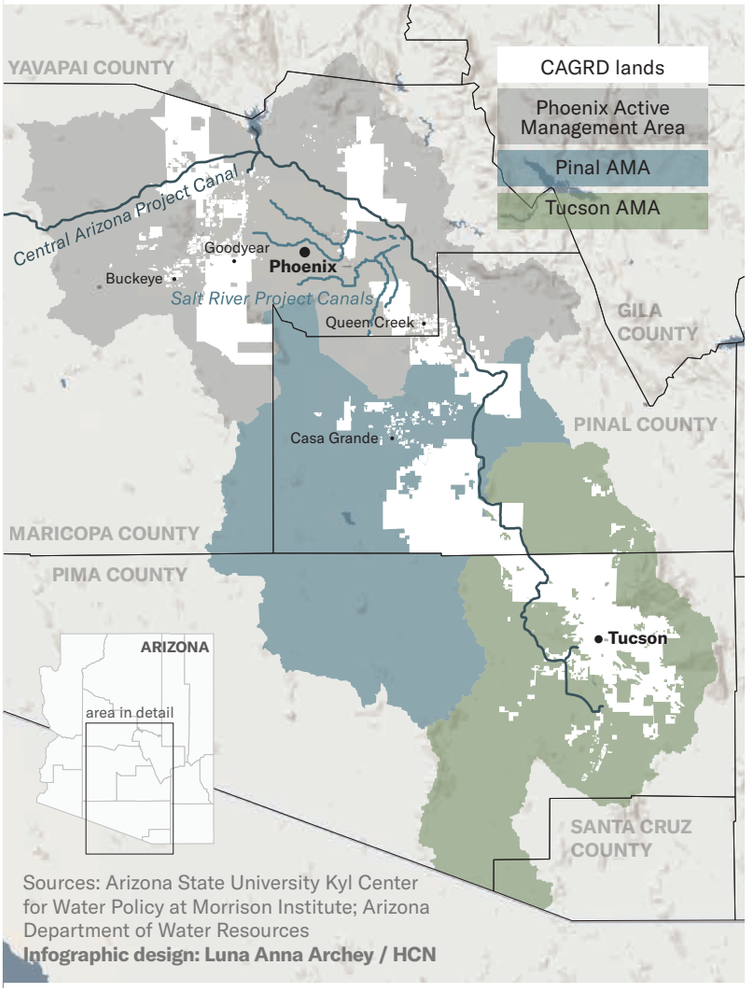
Originally, that assured water supply came primarily from the Salt River Project or the Colorado River, but in 1993, the state paved a way to build new homes served only by groundwater, allowing housing development to spread into the outer reaches of Phoenix and Tucson. To do that, legislators created the Central Arizona Groundwater Replenishment District (CAGRD), an entity tasked with replacing pumped groundwater by finding renewable water supplies and injecting that water back into the aquifer.

The Central Arizona Project canal had just been completed, and the Valley of the Sun was flush with new surface water deliveries from the Colorado River. Developers and municipalities that lacked an assured water supply could enroll in the CAGRD, which in turn, charged a fee for replenishing the groundwater they used. They did so with surface water acquired by various means, including the purchase of excess CAP supplies or leasing Colorado River water from tribes.

The loophole worked; since

Phoenix, the "least sustainable city on earth," according to one sociologist *(facing)*. A lateral canal brings water from the Central Arizona Project (CAP) canal system to agricultural land near Casa Grande, Arizona *(top)*. Roofers work on a house in the Ghost Hollow Estates on the northeastern edge of Casa Grande, Arizona *(above)*. Megan Santana and her son, Malachi, stand in front of their future home in the Cadence Subdivision in Mesa, Arizona. There's such high demand at Cadence that Santana had to win a spot in a lottery before she could purchase a home *(left)*.

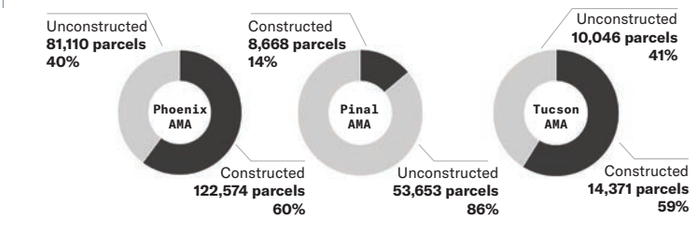
Lands covered — and not covered — by the Central Arizona Groundwater Replenishment District (CAGRD)



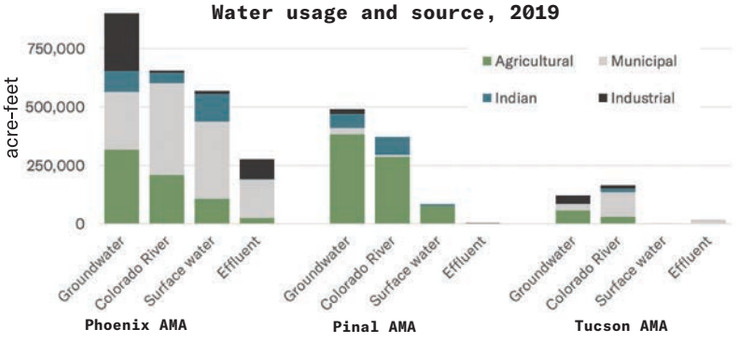
Sources: Arizona State University Kyl Center for Water Policy at Morrison Institute; Arizona Department of Water Resources

Infographic design: Luna Anna Archey / HCN

Constructed and unconstructed parcels of each Active Management Area (AMA)



Water usage and source, 2019



1995, a majority of new homes and lands enrolled in CAGRD's growth are located at the far western and eastern ends of the Phoenix area.

Meanwhile, unrelenting drought and years of rising temperatures due to climate change have pushed the long-over-allocated Colorado River to the brink, making it increasingly difficult for the CAGRD to find new renewable water supplies to meet its long-term obligations. This, in turn, caused the CAGRD's replenishment fee to soar from $154 per acre-foot in 2002 to $742 per acre-foot in 2021.

A 2019 report published by the Kyl Center warns that in the long term there likely won't be enough surface water available from the Central Arizona Project to replenish the groundwater used by all the homes currently planned for the Phoenix suburbs. Although enrollment in the CAGRD has slowed in recent years, that amount is expected to total 102,000 acre-feet annually 100 years from now.

Buckeye's municipal planning area, for instance, covers 642 square miles — larger than the size of Phoenix — but it's currently only 5% "built out." The city has approved 27 master-planned housing developments that would bring an additional 800,000 people by 2040 — despite a water supply that's almost entirely dependent on groundwater.

If the city cannot provide an assured water supply, those future subdivisions will have to enroll in the CAGRD, which will have to find 127,000 acre-feet of additional surface water annually to replenish the aquifer, said Sarah Porter, director of the Kyl Center and co-author of the Assured Supply report. That's more than four times the current replenishment obligations for the entire CAGRD. "We're not thinking enough about how to stop all this from happening," Porter said.

Kathryn Sorensen, the former director of Phoenix Water Services and now the director of research at the Kyl Center, echoed Porter's concerns, emphasizing that growth itself is not necessarily the problem; rather, it's the kind of growth facilitated by the CAGRD. "I think that the ability of the Valley of the Sun to exist 100 years into the future depends so closely on our ability to steward our groundwater today, and I really see CAGRD as subverting that stewardship," she said.

But Alan Jones, the president of Lennar's Phoenix division, believes those fears are overblown. Water use is declining as conservation, treated wastewater and no-grass landscaping become more prevalent, while putting subdivisions on Arizona's former agricultural lands creates a net water savings, since growing crops uses more water than residential areas do. Plus, in 2018, the CAGRD secured a deal with the Gila River Indian Community, which borders the south side of Phoenix, for up to 830,000 acre-feet of its Colorado River allocation over the next 25 years, starting in 2020. Other Arizona tribes, he added, have large supplies that the CAGRD and municipalities could acquire.

"There's sufficient water," Jones assured me, "but at what cost?"

IN PINAL COUNTY, a rapidly growing rural area just south of Phoenix, the reckoning over future growth has already begun. One day in late March, I met Stephen Miller, the Pinal County District 3 supervisor, in Casa Grande, a town of 55,000. New housing developments have exploded here in recent years. "The farther out you get, the cheaper the land, the cheaper the house," he said as we drove through town. "That's what's caused a lot of sprawl," he added, quoting an old saying in the building business: "Drive till you qualify."

Born and raised in the Phoenix area, Miller has the jovial, everyman demeanor of a local politician. A former homebuilder and land developer, he's watched Pinal County transform from a sparsely populated agricultural region to a booming Phoenix exurb of 500,000

Horseshoe Reservoir on the Verde River is part of the Salt River Project's extensive infrastructure for supplying water to the Valley of the Sun.

people with an up-and-coming electric car industry. The current housing boom, which followed a down period after the 2008 recession, is unlike anything Miller has seen in 50 years in Casa Grande.

Almost all of Pinal County's residential water supply comes from groundwater through enrollment in the CAGRD. But in 2019, the Arizona Department of Water Resources updated its groundwater model for the Pinal Active Management Areas and found that there isn't enough water to meet all the projected demands for 100 years.

These findings led the department to stop approving applications for new 100-year assured water supply certifications for future subdivisions in Pinal County.

"It's not a panic situation," Miller told me, when I asked whether the news had worried him. "The good thing is, we're not out of lots," he added; developers own thousands of still-undeveloped lots with valid 100-year water supply certifications. Pinal County has enough room to keep adding houses in the short term. In the long run, however, the county is facing a reality that Arizona politicians like Miller are loath to accept.

"People want to make money," he told me. "That's what this is all about. To be perfectly frank, there are people who have millions (of dollars) tied up in land holdings in Pinal County whose future hinges on whatever the water policy ends up being. It's worth almost nothing if there's no water."

Tom Buschatzke, director of the Arizona Department of Water Resources, told me that Pinal County is not the only area facing a groundwater deficit. Sooner or later, Arizona's other active management areas — including the Maricopa County AMA, which includes most of metropolitan Phoenix — will run out of physical groundwater availability to allocate. "Groundwater is finite," Buschatzke said, noting that the amount of pumping far outstrips the rate of natural replenishment. He added that many of the Valley of the Sun's growing suburban cities are not going to be able to prove the physical availability of water necessary for their ambitious plans for growth — and they know it.

"So where will the future renewable water supplies come from? Is it going to come out of agriculture? Or out of a desalination plant in Mexico?" Buschatzke said, citing an ongoing discussion

(continued on page 41)

The final stretch!

DEAR READERS,

When I became publisher a year ago, I found an organization that was doing essential — even heroic — work. Our journalists cover places that are overlooked by national media — small towns and rural communities, the working lands and wildlands of the Western U.S. We elevate stories of, by and for Indigenous people and others whose voices are too often unheard.

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With gratitude,
Greg Hanscom, executive director and publisher

Sarah Watson climbs Skinwalker in Moab, Utah.
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Sharing stories

ON EARTH DAY 2021, 91 *HCN* readers joined former publisher Paul Larmer for a virtual stroll down memory lane. Some legendary editors and writers gathered on Zoom to reminisce about *HCN*'s first 50 years. Shortly before editor **Joan Nice Hamilton** came to Lander, Wyoming, in the 1970s, founder Tom Bell, in a fit of despair, threw the upcoming issue's paste-up sheets in the dumpster. His unpaid part-time staffers rescued them, telling him he couldn't quit. And readers responded, sending in what was then a fortune — $30,000. Tom was able to hire Joan and her boyfriend, **Bruce Hamilton**, for a combined $600 a month, and the rest is history. Watch Joan and Bruce — and **Betsy Marston, Jonathan Thompson** and **Michelle Nijhuis** — at **hcne.ws/memory-lane**

One of Bruce's first stories was about a young anti-strip-mining activist, **Louise Dunlap**. Sadly, Louise passed away this spring, but she left an enduring legacy, including the 1977 Surface Mining Control & Reclamation Act, which requires coal companies to get permits and post reclamation bonds. "Louise and her husband, Joe Browder, were an incredibly effective lobbying dynamo," *HCN* board member **Andy Wiessner** recalled. "And they did it with such passion and grace."

David Maren of Flagstaff, Arizona, visited *HCN*'s home office in Paonia, Colorado, a few years ago, but the staff was out, so his visit was lost to posterity. Paul Larmer tried to make amends when he met David at a Flagstaff coffee shop in late February. A veteran river rat who once ran the Grand Canyon with writer Ed Abbey, David said life in Flagstaff revolves around water and smoke. Two summers ago, he had to hurriedly pack as air tankers dropped water on a racing wildfire on the Coconino National Forest. Fortunately, parts of the forest were recently thinned and burned, part of a taxpayer-financed watershed protection project. "Now, when I smell smoke," he said, "I think, 'healthy forest.' "

When conservation biologist **Phil Hedrick** started working at Arizona State University in broiling downtown Phoenix, his spouse, **Cathy Gorman**, found a cooler weekend refuge: 50 acres along Aravaipa Creek. The creek was flowing nicely below newly leafed-out cottonwoods when Larmer visited the couple, subscribers since 1991. In a pasture sprinkled with aging nut trees, Cathy once raised Navajo churro, sheep bred by Southwestern Indigenous nations ever since the Spanish arrived in the 16th century. As Cathy worked to preserve the herd's genetic diversity, Phil labored to recover the endangered Mexican gray wolf, also imperiled by a lack of genetic diversity — an effort that, as readers know, some ranchers still fiercely resist. Hedrick, who retired in 2016, says over 300 wolves, including zoo-raised pups inserted into active, wild dens, now roam the mountains between Arizona and New Mexico. *—Paul Larmer*

Phil Hedrick and Cathy Gorman at their property along Aravaipa Creek, Arizona.

Here's to the next 50 years of giving a darn about an unbroken West.

Folk artist Nicholas Herrera keeps his ancestral homestead outside El Rito, New Mexico, up to snuff.
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Wolf traps capture more than just wolves.

Several states allow wolf trapping and snaring. Records show that at least 47% of the time, Idaho wolf trappers trap something other than a wolf.

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LEARN MORE on our blog at:

LivingWithWolves.org

ENCOURAGING COEXISTENCE

(continued from page 13)
family, however, now lives in a FEMA trailer, one of about a hundred Jackson County households the agency is housing; another hundred are on its waitlist. The state is providing hotel rooms and RVs to an additional 765 Jackson County fire survivors.

As the Martins sorted their few belongings into their room at the Redwood Inn, their 7-year-old dog, Keyeva, stretched out on the bed. Keyeva had made it out of the fire, but the Martins' five chickens died in their coop, and their cat was nowhere to be found. Living in the Redwood Inn rent-free means they can save up for a down payment on a house, the Martins explained. "We're not looking for a handout," Steve Martin said. "We're just looking for a hand."

A FEW DAYS LATER, the aroma of pork tacos and homemade salsa filled the air of an upstairs motel room at the Redwood Inn. Alvarez and her family were taking advantage of their room's kitchenette; Rogue Retreat had spent extra time preparing units that already had kitchenettes to accommodate people with specific dietary or medical needs. Lanette Martin has Type 2 diabetes, and two of Alvarez's three children have hemophilia, a bleeding disorder.

After they moved in, one of Alvarez's first tasks was to give her 10-year-old son, Anthony Gonzalez, the weekly injection that helps his blood clot properly. Alvarez and her children moved from California to Oregon last year, drawn by the state's good public schools and booming hemp industry. But the wildfires burned many of the region's farms, and Alvarez has had trouble finding jobs trimming hemp.

According to the Oregon Climate Change Research Institute's 2021 report, wildfires in the state are expected to become more intense and frequent. Fires tend to have the greatest impact on marginalized communities, whose members are often left with few resources following climate-related disasters, said Alessandra de la Torre, a staff member at Rogue Climate, a southern Oregon climate justice organization. The group helps run a wildfire relief mutual aid facility that, seven months after the fires, was still supplying food and clothes to about 300 people a week. "We can't allow for people to be sleeping in their cars right after a disaster or an emergency," she said. "Because, at the end of the day, you still have to go to your job the next day. Your kids have to go to school."

Sinking into their new beds in the Redwood Inn, Alvarez's two younger children eagerly asked their mom and 22-year-old brother, Diego Gonzalez, about school — when they could start going, and whether it would be in-person or virtual. They also asked if they could walk or take the bus to get there, since their mom and brother needed to work. Instead, while the family figured out transportation, the kids spent their first days in the motel watching TV, playing video games and tending to their cat, Biscuit. "They don't go out anywhere," Alvarez said. "They're locked up." Now, most weekdays the kids wait outside for a bus to take them to school.

Meanwhile, Alvarez, after finally landing one of the few remaining local hemp jobs, returns to the motel each evening, exhausted from working 10-hour days to save up for a small rental house or apartment. Squirming on the edge of one motel bed, Alvarez's 13-year-old daughter, Alma Gonzalez, said she hopes to one day have a room of her own, and a dog. Anthony Gonzalez said he wants a backyard to run around in. "We just want to be kids," his sister added.

But for now, the family crowds together in the Redwood Inn. "Hopefully," said Diego Gonzalez, "from here, it's not much farther until we can have a home."

Lanette and Steve Martin move into the Redwood Inn on April 12th *(top).*

Anthony, 10, and Alma Gonzalez, 13, in the motel room they're now sharing with their mother, older brother and cat *(bottom).*

"We're not looking for a handout. We're just looking for a hand."

Looking south from the Williams Creek Road summit in Idaho's Salmon-Challis National Forest.

THE FIRE NEXT TIME

In central Idaho, a community debates how to prevent wildfires from burning through towns.

By Carl Segerstrom | Photos by Rebecca Stumpf

SMOKE BLOTTED OUT THE MIDDAY SUN as firefighters rappelled from helicopters into the remote backcountry of the Salmon River Breaks in central Idaho. A small but swiftly growing string of blazes roared across the granitic walls of the river gorge. It was a late July day in 2012, and the Mustang Fire had just ignited. "I thought we were going to die," firefighter Jonathon Golden later told NBC News.

The area is nightmarish, deadly terrain for wildland firefighters. Its canyons — deeper than the Grand Canyon — tend to fill with thick smoke and channel unpredictable, fire-stoking winds. Less than an hour after Golden's crew landed, they were in trouble. Scattered amid smoke so thick the whirling helicopter rotors barely seemed to stir it, the firefighters unshouldered their heavy packs and fled the flames, leaving behind tools, water bottles and even a wallet. They were shaken but alive.

That aborted attack on the Mustang Fire made it clear that terrain and weather, not firefighters, would determine how long and how far the blaze would burn through the backcountry. "There was no access," Fritz Cluff, the fire manager for the Salmon-Challis National Forest, where the fire was located, told me recently. "It was on a really ugly piece of ground."

As the fire roared through thick stands of scaly-barked Engelmann spruce, subalpine fir and lodgepole pine, it drew closer to the small communities of North Fork and Gibbonsville, where cabins are tucked into conifer groves on either side of Highway 93. Firefighting crews prepared to defend homes by clearing brush, setting up hose lines and starting backburns, which clear out tinder on the ground. In the nearby town of Salmon, the sky was the apocalyptic orange now familiar across much of the Western U.S.

In the end, the fire spared the towns, in part because of a forest-thinning project that had started the spring before in the Hughes Creek drainage, an area of wooded canyons set between the communities and the backcountry. After years of planning by the Lemhi Forest Restoration Group, a local collaborative convened by a conservation nonprofit, thick stands of trees had been selectively logged to help protect homes. The logging didn't leave dramatic gashes of downed trees or abrupt, clear-cut expanses; it had been designed to thin the forest, turning tightly packed clumps of overgrown trees into roomier groves that a person could easily stroll through without getting snagged.

In a sense, that's what thinning is supposed to encourage wildfires to do: amble along the forest floor rather than brush up against tree branches and carry flames from trunk to treetop, torching entire stands and making firefighting untenable. Along the Highway 93 corridor, the thinning had helped keep the fire at bay. "These treatments were well placed, well implemented and were clearly a practice that paid significant dividends," a 2013 Forest Service report on the fire concluded. The thinned spots were places where fire crews could comfortably dig fire lines and set backburns, as long as the weather

cooperated. "From a safety standpoint, (the firefighters) didn't feel like we were putting them in a bad situation," Cluff said.

Between late July and November, the Mustang Fire — central Idaho's most recent major blaze — scorched 336,028 acres, making it one of the largest fires in the United States in the last century. Despite its massive footprint, no homes were destroyed and no one was injured. But the threat remains — a lightning strike or careless match could spark the next megafire at any moment. The challenge now, for the communities and the Forest Service, is how to prepare.

PEOPLE IN THE SMALL TOWN of Salmon and its even smaller neighbor, Challis, refer to the land as "country," a term befitting the expansive landscape but also an apt description of who manages it. In Lemhi and Custer counties, where Salmon (population 3,096) and Challis (population 758) are located, the federal government — primarily the Forest Service — administers more than 90% of the land. Vast stretches of the Salmon-Challis have a high level of protection, including 1.3 million acres of the Frank Church-River of No Return Wilderness, the largest contiguous wilderness area in the Lower 48.

On a sunny morning in early April, I met Charles "Chuck" Mark, the forest supervisor tasked with managing the Salmon-Challis. Mark has held his position and lived in Salmon since 2013. From the agency headquarters south of town, we drove up Williams Creek Road, a popular local access point for campgrounds, fishing, hiking and hunting. As we climbed a ridge, we passed fields swept by the long arms of center pivot sprinklers, winding through a steep sagebrush canyon and into mixed stands of conifers. Mark, who started working for the agency as a seasonal firefighter four decades ago, wears his uniform neatly and looks as if he could hike many miles to a backcountry fire. When asked a question, he typically pauses to reflect before giving a detailed answer. He told me that wildfire is his biggest challenge in leading the forest.

The town of Salmon, in east-central Idaho, sits in a wide valley snaked by the Salmon River and next to the 1.3 million-acre Frank Church-River of No Return Wilderness *(opposite)*.

Chuck Mark, forest supervisor with the U.S. Forest Service in Salmon, sees wildfire as inevitable. Mark is doing everything he can to treat the timber on the mountains here in order to prevent future fires from destroying towns *(below)*.

At the top of the ridge, we got out and stood above a natural clearing. A blanket of trees stretched dozens of miles from the Bighorn Crags, a smudge on the horizon where granite peaks cradle alpine lakes, to the edge of the town of Salmon. A Cassin's finch trilled above us. Mark, who was wearing an earflap hat with the flaps tacked up, leaned his wiry frame against the door of his government-issued white Ford Explorer. He pointed out stretches of deep green forest splotched with light brown — places where beetle outbreaks had killed the trees. This area, dissected by deep and steep canyons, is Mark's primary concern when it comes to protecting the people below — his friends, neighbors and critics — from wildfire. Since the Mustang Fire, the Forest Service has overseen limited logging in the Salmon-Challis, but Mark sees a need to greatly increase it. "It isn't a question of if," he said. "It's *when* we're going to have fire. ... So we've got to start poking some holes in this."

After the devastating 1910 wildfire known as the Big Burn, when flames raced across millions of acres in the Northern Rockies in just a couple of days, killing scores of people, the Forest Service began extinguishing fires as quickly as possible. But Western forests are adapted to wildfire; some lodgepole pine cones, for example, don't release their seeds until they are scorched. The agency's firefighting actions have drastically altered the natural cycles of the forests. Over the last century, more and more trees, shrubs, logs and duff — what wildfire scientists collectively call fuel — have accumulated, priming the landscape for larger and hotter fires.

Other forces have also made the region and its people more vulnerable. As neighborhoods and isolated homes expand into wooded areas, blazes are more likely to damage property and endanger lives; in 2020, nearly 18,000 structures burned in wildfires in the U.S. And climate change has led to less snow, more extreme weather, and hotter, drier conditions overall, driving longer, more intense fire seasons. Researchers from the University of Idaho and Columbia University estimate that human-caused climate change has doubled the amount of forest burned in the Western U.S. since 1984.

In recent years, wildfires have destroyed entire towns, Paradise, California, and Blue River, Oregon, among them. With the stakes so high, there's a major push across the Forest Service's ranks, from leadership to on-the-ground staff, to manage the landscape in a way that reduces the risk of devastating consequences. For the agency, that means thinning forests and setting prescribed burns — controlled fires in specific areas to clear out the underbrush, so that subsequent fires burn less intensely.

From the overlook, Mark pointed out an example of the kind of cutting he's trying to avoid: Three bright emerald patches of trees stood out among the deep green and beetle-kill brown of the surrounding forest — decades-old clear-cuts. There, young trees were crowding each other in what's known in forestry lingo as doghair thickets, dense growth that could spur instead of slow flames.

Mark wants to explore every option available to expand thinning and controlled burns in the Salmon-Challis. One mechanism at his disposal is a federal agency planning tool called a categorical exclusion — a way to quickly and efficiently move a proposed project forward. Classic examples of projects covered by categorical exclusions are painting a picnic table or mowing a lawn — routine tasks with little environmental impact.

The National Environmental Policy Act (NEPA), which governs federal agencies' decision-making on projects that affect the environment, requires agencies to be clear about what they're doing, where they're doing it and what the impacts might be. There are

three different ways of doing this, but categorical exclusions allow the government to be as tight-lipped as possible. The other two options — environmental assessments and environmental impact statements — are more involved: They both mandate objection periods during which the public can submit critiques that the agency must answer. Under categorical exclusions, however, the agency doesn't have to provide rigorous documentation of possible environmental harm or justify its actions to commenters — or even respond to comments at all. The only way for the public to get that kind of response is a lawsuit.

Over the last two decades, Congress and agency officials have expanded categorical exclusions well beyond picnic tables and blades of grass. In a 2018 federal funding bill, for example, Congress tacked on a new categorical exclusion for thinning projects of up to 3,000 acres. The Forest Service has also expanded its own authority to use categorical exclusions through administrative changes.

An analysis of Forest Service NEPA planning conducted by researchers from the University of Minnesota and the University of California, Davis, published last year, found that between 2005 and 2018, more than 80% of Forest Service projects were approved with categorical exclusions. Most of those projects were routine and of little environmental consequence, things like renewing a rafting company's permit or repairing a bathroom. But recently there's been an uptick in exclusions that cover broad swaths of land. This concerns agency watchdogs, who worry that landscape-level projects are being carried out with the minimum level of analysis and public engagement.

In October 2020, Mark released plans for two sweeping categorical exclusions on the Salmon-Challis intended to combat wildfire risk. One proposed allowing prescribed fire and hand-cutting timber on 2.4 million acres — the entire forest, except for designated wilderness or roadless areas. The other proposed thinning and prescribed fire on an overlapping 1.4 million acres. Neither included commercial logging.

A national review of agency planning documents by the environmental organization WildEarth Guardians found that nearly 3.8 million acres of projects were proposed under categorical exclusions between January and March of 2020. The review's authors found that many of the projects lacked specifics regarding where activities like thinning and road building would occur, and there was often no indication of the role, if any, the public had in influencing the agency's decisions. "There is rarely an opportunity for meaningful public involvement," the report notes. "And in many instances the public is left in the dark as to the rationale behind the authorization or any extraordinary circumstances until the project has been approved."

In a December phone call, Mark was frank about why he wanted to use categorical exclusions at a landscape scale. "We're trying to … start treating more acres," he said. "I think we're too far behind already. But to start gaining some ground, I think that's what's needed." What Mark didn't foresee was that wielding this tool, even to mitigate wildfire risk, would stoke the frustrations of groups that had felt left out of the Forest Service's plans in the past.

TO REDUCE THE IMPACTS of wildfire, the Forest Service and Western politicians harp on the importance of increasing logging and controlled burning. But some environmentalists and ecologists — particularly those that prioritize a hands-off approach to forest management — argue that aggressive thinning has little potential to change fire behavior. "You just can't do it on enough of the landscape to make a big-enough difference," said Dominick DellaSala, the chief scientist for the environmental nonprofit Earth Island Institute's Wild Heritage program, which focuses on forest protection. "And even if you could, it only will work under low to moderate fire weather." Thinning can also make fires worse and even damage ecosystems, he added. Wind speeds can increase in thinned stands, driving fires even farther and faster, and logging-access roads damage wildlife habitat through erosion. Those same roads also make it easier for people to go out and start fires — more than 80% of wildfires are sparked by humans.

"There is rarely an opportunity for meaningful public involvement. And in many instances the public is left in the dark as to the rationale behind the authorization."

Burn scars from a prescribed fire mark the base of trees along Hughes Creek Road near Gibbonsville, Idaho. Controlled fires remove undergrowth, thereby helping to keep the flames of future wildfires on the ground instead of igniting entire trees *(opposite)*.

DellaSala has seen firsthand how out-of-control fires can destroy communities. Last September, the Almeda Fire ripped through his hometown of Talent, Oregon; it killed three people and leveled thousands of homes. With that in mind, he thinks fire protection should start in backyards rather than the backwoods, and be small and targeted rather than forest-wide. "We can be surgical about how we treat the landscape, go to the places that are closest to the homes and work from the home out," he said.

While opinions differ on the impact of thinning, ecologists and forest managers generally agree that prescribed fires can help reduce the likelihood of megafires. Intentional burning by Indigenous nations shaped Western forests for millennia. The genocide and dispossession of Indigenous people by European colonizers disrupted the links between humans, fires and forests. Programs like the Indigenous Peoples Burning Network are working to repair those relationships and return cultural fire to the landscape by building partnerships between Indigenous fire practitioners and the government employees responsible for controlled burns.

The Indigenous Peoples Burning Network is not yet active in Idaho, but tribal agencies in the state are working to get more fire on the ground, including in partnership with the Forest Service. "Prescribed burning is something that we do as much as we can," said Jeff Handel, who leads the Nez Perce Tribe's fire-management

program. Handel also participates in the Idaho Prescribed Fire Council, a group of tribal, federal and state governmental and agency representatives, as well as private citizens, created in late 2020 to promote planned fires and share resources. Tribal and federal agencies already partner on putting out wildfires, Handel explained, so it makes sense for them to work together on prescribed fires. "We fight fires that way," he said. "I think we should also do our forest planning and burning that way."

DRIVING INTO SALMON from the north, you emerge from steep-walled forests into a rolling valley bottom. In April, wobbly calves stood next to their mothers in a pasture at the edge of town, beneath a Confederate flag. An hour south in Challis, a large billboard depicting blackened trees against a red backdrop blamed devastating wildfires on people who oppose logging: "Environmentalists... you own this! Log it, graze it, or burn it!" Both counties are overwhelmingly white and Republican.

At a picnic table at the intersection of Main Street and Highway 93 in Challis, Dolores Ivie, a former administrator for the local power company, schoolteacher and 2019 inductee into the Idaho Republican Party Hall of Fame, ran through a litany of frustrations with how Forest Service officials and D.C. politicians have managed the Salmon-Challis. Ivie, along with many in the area, felt like the Forest Service wasn't serving their needs; instead, it was reintroducing wolves, expanding wilderness and working too closely with a local conservation organization. "People want use of their federal lands," she said, for jobs, firewood, recreation and grazing. And they want to feel like the Forest Service is listening to them, she added.

As we sat under the bright but chilly spring sun, Ivie wore sunglasses over readers and smoked Basic brand cigarettes, neatly tucking the butts back into the pack after extinguishing them.

Dolores Ivie coordinates a citizens' group that wants more economic activity and fewer protections on the Salmon-Challis National Forest. Her car sports a bumper sticker locals made after a contentious meeting with U.S. Forest Service officials *(bottom)*.

Ivie coordinates a citizens' group called the Lemhi-Custer Grassroots Advisory, or the LCGA, created to amplify local concerns over how the Forest Service is managing the land. She was chosen to lead it for a simple reason: "I have organizational skills that scare most people," Ivie said, cracking a wry grin.

The LCGA formed as a counterpoint to two other Salmon-Challis stakeholder groups. Both are what's called a forest collaborative: an association of people with diverse interests in a particular forest who debate issues like wildfire risk and habitat restoration, then offer their advice to Forest Service managers. Forest collaboratives rose to prominence in the 2000s and 2010s as a way to involve communities in federal land management, though they're not led by the Forest Service — instead, a group such as an environmental organization typically convenes them — and they lack official decision-making authority. Still, the agency generally looks to these groups to help develop plans and build awareness and consensus around upcoming projects. There are two Salmon-Challis collaboratives: the Lemhi Forest Restoration Group, which helped plan the fuel treatments that were effective during the Mustang Fire, and the Central Idaho Public Lands Collaborative. Both groups are facilitated by Salmon Valley Stewardship, the local conservation organization whose influence chafed at Ivie.

The catalyzing moment for the LCGA's creation came at a public meeting in 2017, when a Forest Service staffer, who is also the former head of Salmon Valley Stewardship, was presenting proposals for revisions to the Salmon-Challis forest plan. Forest plans are influential, detailed documents: They guide all of the agency's decisions on a given national forest. But when one member of the public asked a question, Ivie recalled, the staffer "basically told her to sit down and be quiet, they didn't want to hear from a bunch of 'angry villagers.' " Today, Ivie's SUV and other local rigs sport yellow stickers with black lettering declaring themselves Angry Villagers. After years of feeling unrepresented on decisions that impact their community, "that was the icing on the cake," Ivie said. "That's what started the LCGA."

Federal land planners often cite collaboration and public participation as fundamental to effective management. But there's no set model for how collaboratives function or who gets to participate in them — no framework to balance interests and ensure that a truly diverse range of viewpoints is represented. Members of the LCGA felt left out; they see the collaboratives as more accessible to environmental professionals, who, after all, get paid to sit in long meetings about forest policies. On the other side of the ideological spectrum, environmentalist critics, like author and activist George Wuerthner, have argued that collaboratives are a waste of time that benefit industry at the expense of wildlife and land protection.

Today, the LCGA has more than 300 members, Ivie said, who favor more economic activity and fewer protective land designations. They've organized public-comment submissions, rallied people to public meetings, been active in the op-ed pages of local newspapers, met with their representatives in Congress and aired grievances to the Forest Service.

The relationship between the group and the agency has improved since the heated meeting in 2017. "We've had input into some issues that have changed their minds," Ivie said, including a large logging project meant to reduce wildfire risk. They also spoke up about the pair of categorical exclusions Mark proposed late last year, the wide-ranging plans to increase thinning and burning on the Salmon-Challis. LCGA members criticized the agency for presenting sprawling plans with so few details, and not including more opportunities for commercial cutting; they'd rather see trees logged than burned. "Resource use is a high priority for the two communities," Ivie said. "That's what we survive on."

TIMBER MANAGEMENT is foundational to the Forest Service. When the federal government created the agency in 1905, it was supposed to prevent wholesale clear-cutting and conserve forests for future generations. But the agency disregarded the knowledge of the Indigenous peoples who had stewarded and shaped the landscape for thousands of years. Instead, it focused on what agency leaders and politicians considered sustainable harvesting.

Most logging on national forests happens through timber sales: The Forest Service outlines where and what kind of cutting it wants done, then private companies bid for the chance to harvest the trees. As part of the process, the Forest Service often offers large, fire-resistant trees — which are more valuable because of their size and tight grain — as an incentive for companies to bid on the thinning that, in many cases, is a sale's true objective. "Something's got to carry the load," Mark said. "Otherwise, you're not going to be able to sell the sale and you won't get anything done."

Sometimes, however, the agency can sidestep this economic model. Unprofitable timber work on the Salmon-Challis is done through partnerships with the Idaho and Montana conservation corps. These work programs channel the spirit of the New Deal's Civilian Conservation Corps — nicknamed "Roosevelt's Tree Army" — which, in the 1930s, employed millions of workers who planted billions of trees. Mark doesn't think today's programs are large enough to make a difference on a landscape scale. But the Biden administration's American Jobs Plan, which proposes a $10 billion investment in a 21st century twist on the CCC called the Civilian Climate Corps, could help scale up similar forest-thinning efforts.

Today, annual timber harvests on Forest Service land are less than a quarter of what they were in the 1980s, in part, at least in the Northwest, because of endangered species protections for spotted owls. In towns like Salmon and Challis, the decline of public-land logging has left a shell of a local timber economy as large mills closed and hundreds of local timber jobs dwindled to just a handful.

The yard of Twin Peaks Timber, seen from above. Owner Joe Frauenberger and his crew of two employees cut a couple hundred acres of trees per year.

One of the few timbermen still making a living logging on the Salmon-Challis is Joe Frauenberger, a Challis local who started his own company, Twin Peaks Timber, in 2017. It's a small outfit, with just two employees, and it isn't geared toward the kind of large-scale logging that occurs in places with an active commercial timber industry, like the Cascades in Oregon, where clear-cuts might cover hundreds or thousands of acres. Frauenberger only has the capacity to cut about a couple hundred acres per year.

And unlike big companies, which send their wood to mills to be turned into lumber, Twin Peaks mainly sells logs for use in local wood stoves. In Lemhi and Custer counties, about a third of households depend on firewood as their main source of heat. Twin Peaks Timber also provides logs and stumps for habitat restoration projects, and does tree-trimming work and other odd jobs around town that require heavy machinery.

Frauenberger said his relationship with the Forest Service has helped his business get all the timber it needs, though it doesn't hurt that he's the only show in town and there's no competition for the small sales he's buying. But Mark doesn't think there's enough local capacity to do the kind of large-scale projects he sees as necessary to reduce fire risk and protect the towns on the edge of the forest — hence the two huge categorical exclusions he proposed in late 2020.

AFTER YEARS of frustration with the Forest Service and each other, members of environmental organizations, the Lemhi Forest Restoration Group collaborative and Ivie's group, the LCGA, found something to agree on: No one liked the categorical exclusions Mark had proposed for the Salmon-Challis. "Both sides disagree on a lot," said Josh Johnson, who participates in the Lemhi Forest Restoration Group as a staffer for the Idaho Conservation League, an environmental nonprofit. "Where we agree is that the Forest Service hasn't done the best job at public involvement."

Environmental groups argued that the projects would indeed have significant environmental impacts and called for a more in-depth planning process. Members of the Lemhi Forest Restoration Group balked at the assertion, in planning documents, that they'd approved of the project — they hadn't. The LCGA complained that the plans were a pet project of environmentalists and didn't include enough logging. All sides agreed that more details

"I don't think it matters how you get there, but that you get there, and you start waking up to why people feel the way that they feel."

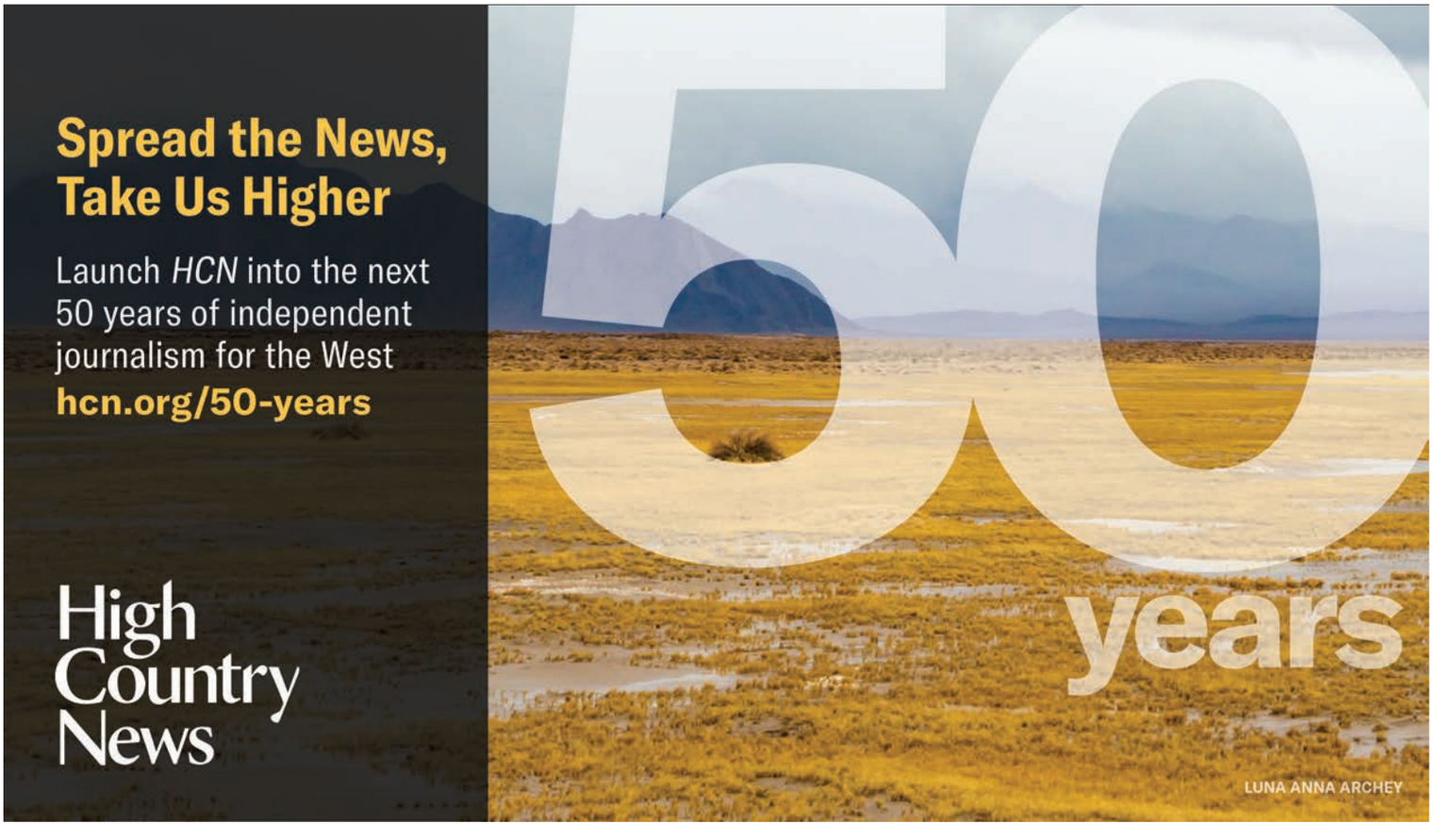
were needed to assess the impacts and justifications for the proposals. They wanted to know where projects would occur, and how and when they would be carried out. In short, they felt like Mark was going about this the wrong way. "Get the input from the beginning," Ivie said; to her, the solution seemed obvious. "Don't come out with a decision and then get clobbered by it."

After receiving that community feedback — and seeing other national forests get sued for similar landscape-level categorical exclusions — Mark put a pause on the proposals. "Some people are uncomfortable, and I knew that coming in," he said. "But I guarantee you get another (fire) that's threatening this ridge with a smoke cloud that's 30,000 feet in the air, I know you're going to be uncomfortable." At the end of the day, Mark's priority is not how the thinning and prescribed fire treatments are planned, it's figuring out ways to make sure that they're actually getting done.

Meanwhile, as Mark decides what to do next — whether to pursue the categorical exclusions or do a more extensive environmental assessment — smaller projects are already underway. This spring and summer, a commercial timber company is logging 872 acres and shipping the logs 200 miles north for milling. It's the largest sale in the area in years, and one that will thin the forest to put firebreaks between the millions of acres of backcountry and the town of Salmon in the valley below. For that project, the Forest Service did sit down with the LCGA to hash out details, giving Ivie the sense that the agency was getting better at involving the community. "I don't think it matters how you get there, but that you get there, and you start waking up to why people feel the way that they feel," Ivie told me. "That's kind of where we are right now, taking steps in that direction. They're baby steps, but they're in the right direction."

In April, after Mark showed me the trees above Salmon that are bound to burn sooner or later, we wound back down the canyon. There, on the side of the ridge facing Salmon, firefighters stand a better chance of stopping a fire threatening the town, because flames are more likely to die down as they move downslope. As the SUV ground over gravel and through spring snowmelt, we passed signs marking the bounds of the logging project. The trees that will be cut were ringed with a line of blue spray paint.

The next time a fire starts in the forest, firefighters will likely be positioned among the remaining trees, waiting to fight the flames. "We're trying to be strategic about it," Mark explained, by focusing on the most advantageous places for firefighters to take a stand against a blaze. "Then we might get the opportunity to at least slow it down, and maybe, in places, stop it," Mark said. "But there's no guarantees."



Trees await planting in a new housing development in Casa Grande, Arizona.

(continued from page 23)
between the U.S. and Mexico about whether to build a desalination facility on the Sea of Cortez. "We'll have to make some hard decisions," he said.

FOR CURRENT AND NEW suburbanites like Megan Santana, those decisions still feel like a long way off. Housing in the Cadence subdivision is in such high demand that Santana had to enter a lottery for prospective homebuyers. Every time they drew names, she was on pins and needles. Finally, after a few months, she got in.

Next year, water levels on Lake Mead, the largest reservoir on the Colorado River, are projected to drop to their lowest levels yet, triggering the first-ever official shortage declaration by the federal government. The declaration will cut Arizona's Colorado River supplies by a fifth.

"I heard about the decrease in water supply," Santana said. "It didn't worry me."

Like so many Americans, Santana sees home ownership as a path to economic stability for herself and her son. In the Phoenix area, where home prices are still among the cheapest for major U.S. cities, that dream beckons like palm trees and water slides in the desert. "You're building generational wealth," she told me.

"Are you moving to Arizona?" Santana's business partner, Bell, asked me, as we stood a few blocks from Santana's future home, gazing toward the edge of the subdivision. Beyond her, a strip of grass disappeared into the sand where workers were leveling a vacant lot for the next phase of Cadence homes.

This article was supported by The Water Desk, an independent journalism initiative based at the University of Colorado Boulder's Center for Environmental Journalism.

(continued from page 8)
— experiences food insecurity, compared to 10.5% of the total population nationwide, according to the USDA.

Burk is not the first to look to growing food locally as a solution. Over the last two decades, several Indigenous-led agricultural projects have emerged across Alaska. Burk's vision, however, is particularly ambitious: In addition to building community gardens and year-round greenhouses, she wants to form a statewide network of Indigenous farmers.

IN LATE APRIL, Burk met with Deenaalee Hodgdon and Calypso Farm staff on a sunny deck at the farm, just yards from swarms of bees delivering pollen to their hungry hive. Hodgdon, 25, founder of On the Land Media, a podcast that centers Indigenous relationships with land, is collaborating with Burk and Calypso on the farmer training initiative.

Hodgdon, who is Deg Xit'an, Sugpiaq and Yupik, worked at Calypso as a farmhand for a summer after sixth grade. Calypso gave them a new language for working with the land. At one point during the meeting, Hodgdon motioned toward the farmland and said, "This could literally feed a lot of our villages in Alaska."

Burk's first target is Nenana, her hometown, where she is working with the tribal office, Native corporation and city government to implement a community-run biomass-heated greenhouse.

The project was inspired by a wood-fueled energy system and heated greenhouse built almost a decade ago in Tok, about a four-hour drive southeast of Nenana. Many Alaskan towns have productive gardens. The growing season lasts barely 100 days. however, and only a handful have year-round growing capacity. The Tok School came up with a clever solution: The facility is powered by a massive wood boiler and steam engine, and the excess heat is piped into the greenhouse. The school has a wide array of hydroponics.

Inside the greenhouse, you could easily forget you're in Alaska. On a brisk day in late April, when the ground outside was brown and barren, dense green rows of tomato plants, lettuce, zucchini and other salad crops reached towards the 30-foot ceiling. During one week in April, when outside temperatures dropped below minus-30 degrees Fahrenheit, greenhouse manager Michele Flagen said she harvested 75 pounds of cucumbers that the students had helped plant. Altogether, the greenhouse provides fresh produce for the district's more than 400 students.

Nenana is at least a year away from installing its biomass system, but Burk plans to begin planting a garden next spring if the greenhouse is not yet ready.

Jeri Knabe, administrative assistant at Nenana's tribal office, loves Burk's plan. "I can't wait. I'm very excited," she said. High food costs have long been a challenge for Nenana residents, she explained: "When I was growing up, we were lucky to get an orange."

Burk and Hodgdon hope to address Native food security statewide, and local community members like Knabe are central to their initiative. During their meeting at Calypso, Burk and Hodgdon emphasized that grassroots agriculture is more than a way to feed people; it's also another step towards tribal sovereignty and self-management. "This is work that has to be done by us, by people in the community, not from the outside," Hodgdon said.

In August 2021, the group will host its first training program for Alaska Native gardeners at Calypso. With so many greenhouses and gardens yet to be built, Burk's latest dream has only just begun to grow.

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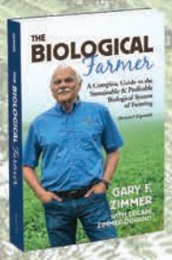

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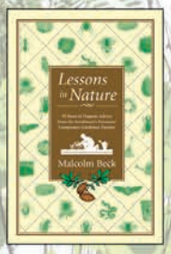

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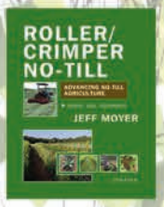

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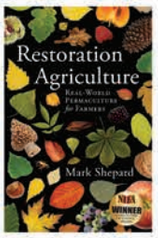

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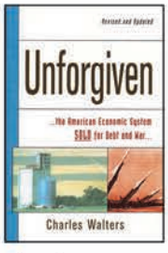

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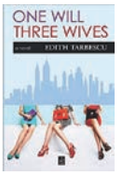

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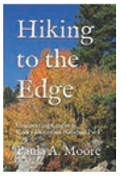

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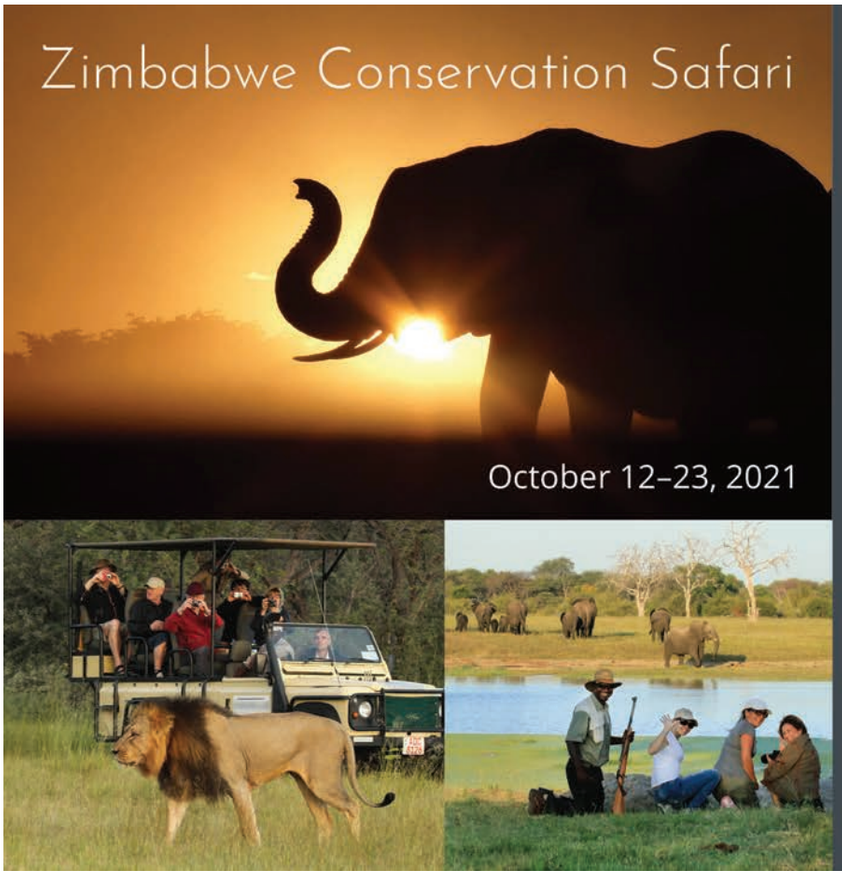


Lauren Crow / HCN

Q&A

Species conservation is a human problem

Writer Michelle Nijhuis synthesizes the story of modern-day conservation in her new book, *Beloved Beasts*.

BY SURYA MILNER

JOURNALIST MICHELLE NIJHUIS crystallizes the human urgency around conservation in her new book, *Beloved Beasts: Fighting for Life in an Age of Extinction*. Despite its title, the book is anchored in the narratives of the people, not just the other living creatures, who have shaped the last century or so of the conservation movement.

In luminous and detailed prose, Nijhuis, who has written for *HCN* for more than two decades and is a contributing editor for the magazine, charts the ongoing story of the conservation movement and its pivotal characters. There have been victories and major disappointments, and Nijhuis doesn't shy away from the dark side, including a legacy of eugenics and settler-colonialism. For her, acknowledging such complexity is essential to the future of conservation if it is to be successful.

The book is a series of profiles, presented chronologically, of the movement's most significant players and the wildlife they sought to save. Though the historical record that Nijhuis chronicles is messy — sprawling across several eras, geographies and species — her writing is direct and intimate, keeping the reader close throughout. At the book's outset, she raises the question: "Why should any of us make sacrifices, even in the short term, to ensure the persistence of other species on the planet?" The answer presents itself as Nijhuis delves into the stories of those who spent their lives wrestling with that same question, uncovering the ways in which all species depend on one another.

High Country News recently sat down with Nijhuis, who lives on the north side of the Columbia River Gorge in Washington and writes and edits for the likes of *The Atlantic*, *National Geographic* and *The New York Times Magazine*. She discussed how her work for *HCN* influenced *Beloved Beasts*, the evolution of her thinking on conserving species and why it's important to reckon with the conservation movement's troubled past. This conversation has been edited for length and clarity.

How did you decide to write a book about the conservation movement and species preservation?

I've always been interested in the backstory of the conservation controversies that I wrote about at *High Country News* and then elsewhere. But a few years ago, I started to think that there might be value in revisiting that history, and in trying to put it together in a way that was accessible to people both inside and outside of the conservation movement. Even professional conservationists don't know that much about their history, and if they do, they tend to think of it as a proces-

sion of iconic figures who didn't necessarily talk to each other. They don't have a sense of it as a movement that developed ideas over time and has had successes and failures.

Species, for better or worse, have always been the fundamental unit of conservation in the sense that they're the basis of many of our conservation laws; they're the emotional currency of the environmental movement in many ways.

Was there anything specific about the reporting for *HCN* that influenced your thinking as you wrote *Beloved Beasts*?

My time at *High Country News* took me to places where I think many professional conservationists never get to go. I got to go to small Western towns of every description, on reservations, off reservations, in mountains, in the desert. ... I got to talk to people of all inclinations. So *High Country News* just gave me a much more complex understanding of the challenges for conservation, and made me understand that it's a human problem. Conservation biology and the science of ecology have taught us so much about what other species need to survive. The challenge for conservation is to figure out how humans can provide those things.

There are so many instances of injustice in the modern world — racial injustice, poverty, slavery, etc. — why choose to write about the loss of biodiversity? How does that connect to human injustices?

Conservation is a practice that is so fundamental to our survival as a species, and I wanted to wrestle with the movement, and try to assess where it's been and where it's going. I knew that conservation — or I should say, certain conservationists — have espoused views that we would now consider reprehensible: There's a history of racism in the conservation movement, of colonialism. These are certainly not universal histories, but they are recurrent threads in the conservation movement. By looking at those closely — by surfacing them and trying to look at how they affect conservation strategy now — we have an opportunity to bring conservation more in alignment with social justice, with climate justice, with a lot of other movements that are important today, and to more fully recognize that we are, at the broadest level, all fighting for the same thing.

How do those threads of colonialism and eugenics resonate today, in the modern conservation world? How should this knowledge shape our actions moving forward?

There have been a whole variety of actions taken by conservationists over the years that range from just simply obtuse to actively harmful to other societies. I think the thing that ties those all together is the lack of appreciation for human complexity. The worst form that has taken is an assumption that people of other races or people of other nationalities are somehow less complex than one's own race or nationality, and therefore their concerns can be somehow dismissed, or they can be oppressed in some way.

The more subtle form that takes is a more general assumption that humans are only a destructive force on the environment. Those assumptions have certainly led to harm against people. But, speaking more generally, they're counterproductive, because they exclude so many people from the conservation movement. There's a lot of willingness and a lot of interest in the conservation movement right now in looking back at its history, in looking at the roots of some of those assumptions and historical oversights, and trying to change their strategies, or trying to rid the influence of those assumptions from their current strategies — to think about all humans in a more sophisticated, more complex way.

Is it possible to have a conservation movement that's centered on the survival and beneficence of nonhuman animals rather than humans themselves? What would that look like?

Over the last decade or so, there's been an ongoing debate in conservation circles about (whether) conservation (should) be about saving species for their own sake, or about saving species for what they can provide — the tangible and intangible benefits they can provide to humans.

I feel like the more relevant question is: How can we reduce the cost of conservation for everyday people? How can we reduce those short-term costs and increase the benefits that people get from conservation, whether those be emotional or financial, so that there's a more equitable balance of burdens and benefits? Most people do want to protect their neighboring species from extinction. I think the job of conservation is to make it possible for people to act on what I think is a very widespread care for the long-term health of other species.

The narrative around conservation is often one of scarcity, loss and despair. But your book doesn't settle on those themes, opting instead for a hopeful message. How do the ideas of hope and possibility factor into your thinking about conservation?

From where we stand today, things look pretty dark. There's no doubt that we are going to lose more species, we are going to lose more habitats, we're going to face more global crises. One of the benefits of a historical perspective is that we can try to put ourselves in the shoes of people who lived before us. They did what they thought was right, and they kept doing it, even though they had plenty of reasons to think that it wouldn't have any positive effects at all. (*Beloved Beasts* includes the story of Michael Soulé, for example, whose research on genetic variation within lizard populations helped reveal the importance of biodiversity and eventually inspired the creation of a new discipline, conservation biology.)

We can take some hope, if you want to call it hope, from that perspective. We don't have any guarantee — no one ever has — that what we do is going to make a difference, (but) our job is to keep doing it. As people who care about the future generally, maybe the thing we can look for is not so much hope, but resolve, and a commitment to the process of change and to finding that resolve wherever we can.

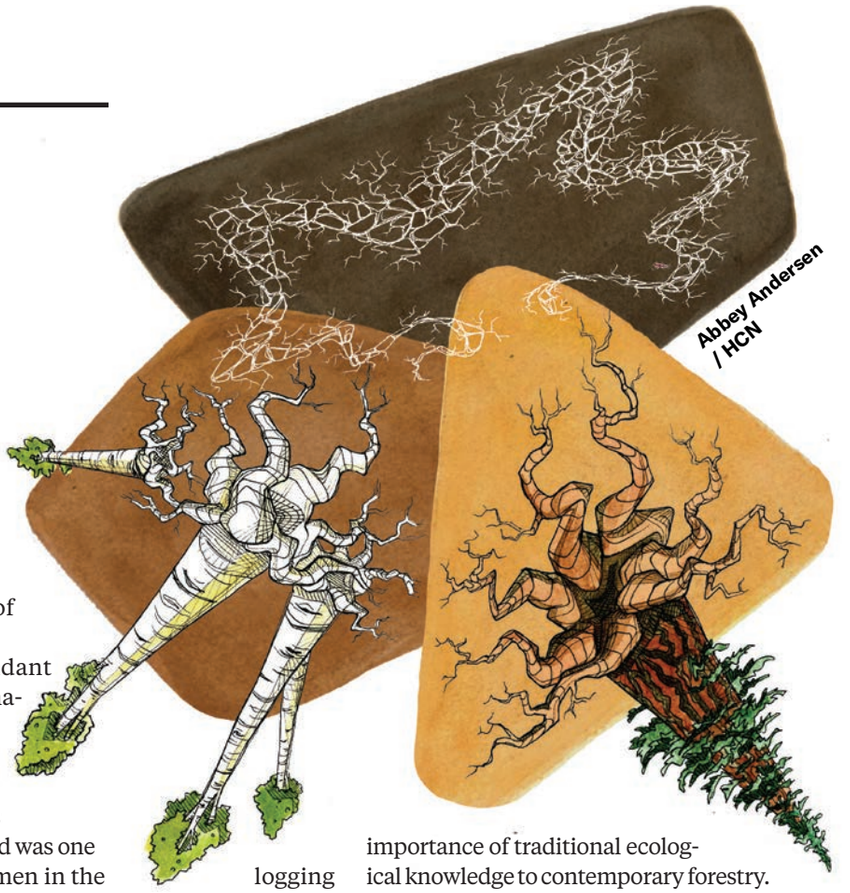
"I think the job of conservation is to make it possible for people to act on what I think is a very widespread care for the long-term health of other species."

REVIEW

The wisdom of trees

A maverick forest ecologist follows in the footsteps of traditional Indigenous knowledge.

BY CLAIRE THOMPSON


Abbey Andersen / HCN

A HEALTHY FOREST HUMS with aboveground stimuli: deer shuffling through dead leaves, breezes ruffling conifer needles, squirrels dropping seeds. The trees, while they appear to stand still, play an important role in this synergy, which can feel almost sentient. Below the surface, fungi connect with tree roots and with each other, facilitating a flow of communication and allowing the trees to share energy, nutrients and intelligence.

"We have always known that plants and animals have their own councils, and a common language," Robin Wall Kimmerer, a renowned biologist and member of the Citizen Potawatomi Nation, wrote in her seminal text *Braiding Sweetgrass*, in 2013. "In the old times, our elders say, the trees talked to each other."

It took centuries, but Western science has finally begun to recognize this traditional knowledge, thanks in large part to the work of Suzanne Simard, a forest ecologist and professor at the University of British Columbia. In her new memoir, *Finding the Mother Tree: Discovering the Wisdom of the Forest*, Simard details her quest to prove that trees share resources like carbon, nitrogen and water via underground networks of mycorrhizal fungi, a give-and-take that boosts the health of the whole forest. In emphasizing the importance of biodiversity and interdependence in forest ecosystems, Simard's findings threatened common logging-industry techniques like aggressive brush removal and clear-cutting — what she and a colleague called the "fast-food approach to forestry."

The idea that trees, instead of simply competing for light, might actually communicate and even cooperate was easy to dismiss as junk science, especially coming from a young female researcher. Other foresters tried to intimidate her and suppress her work. Simard's candid and relatable account shows how difficult it is for an outsider to push the boundaries and retain credibility in an insular and unforgiving field. Her studies have attracted criticism, and her story, in more ways than one, suggests that science and industry have a long way to go when it comes to recognizing other forms of knowledge.

A descendant of French Canadian homesteaders in British Columbia's interior, Simard was one of the few women in the logging industry in the early 1980s. She wondered why the weeded, monoculture tree crops were so sickly compared to the remaining old-growth woods. "In my bones," she writes, "I knew the problem with the ailing seedlings was that they couldn't connect with the soil." It seemed obvious that standard forestry practices were not good for the forest's long-term health. But she knew she'd need "rigorous, credible science" to prove herself and her hypotheses to the men who directed government forestry policy.

Simard transitioned to working with the British Columbia Forest Service, investigating weeding effects in clear-cuts. A sense of duty drove her to speak out against wrongheaded practices — like removing native shrubs from tree plantations to reduce competition — and continue her research. Then, in 1997, *Nature* published her study on the way trees share carbon via fungal networks. Though government forestry policies didn't change immediately, her paper received worldwide press and encouraged a new generation of scientists to pursue similar lines of inquiry.

It's not until the book's final chapter that Simard explicitly lays out the connections between her work and the long-held wisdom of Indigenous traditions. She describes how her findings echo the teachings of tribes like the Secwepemc Nation, in whose ancestral territory she grew up and did much of her research.

Simard's decision to place these revelations at the end of her story reflects the chronology of her own understanding; her acceptance evolved in parallel with mainstream recognition of the importance of traditional ecological knowledge to contemporary forestry. The fact that different traditions can arrive at the same truth solidifies that truth's veracity, but Simard's story also shows how rare effective communication between traditions has been, and still remains. Inclusive stewardship is not merely a worthy goal for women like Simard who want to make it in male-dominated fields — it is an urgent priority as climate change upends ecosystems.

Gradually, policy evolved to tolerate a greater diversity of native plants in British Columbia's managed forests. But, more importantly, Simard's work contributed to a shift toward more holistic ecological thinking across institutions, a sea change whose impacts will become clearer as younger scientists achieve new understandings of biodiversity. Simard is optimistic. One of the most intriguing branches of her later research involves the way trees warn each other of disease or drought. What Simard, and the Secwepemc, call Mother Trees — the biggest, oldest trees in a grove — act as vital hubs in this communication network, passing messages and sustenance to their offspring and neighbors. It is this collaboration, this sharing of intelligence and resources within a diverse forest community, that makes resilience possible. "The forest is wired for healing in this way," Simard writes, "and we can help if we follow her lead."

Finding the Mother Tree: Discovering the Wisdom of the Forest
Suzanne Simard
368 pages, hardcover: $28.95
Knopf, 2021.

REVIEW

The everyday violence of Indian Country's 'bordertowns'

Red Nation Rising is a handbook for Native liberation and solidarity.

BY KALEN GOODLUCK

IN JUNE 2017, A STORE OWNER in Omaha, Nebraska, called the cops on Zachary Bearheels, a young Rosebud Sioux man, who was acting erratically in the street. Bearheels, who had been traveling to visit his mother, ended up on the side of the highway after he was kicked off a Greyhound bus without medication for his bipolar and schizoaffective disorders. After walking all day, he was met by four police officers. The scene quickly escalated; officers cuffed Bearheels and placed him in a police cruiser, then let him out after calling his mother, who had filed a missing person's report. Bearheels fled and was chased by police, who beat and tased him repeatedly. When it was all over, Bearheels, hands still cuffed behind his back, lay dead on the ground. According to news sources, the coroner's report stated he had died of "excited delirium syndrome," a non-medical, junk-science euphemism police use when suspects die from tasers or chokeholds.

Bearheels' story is part of the violent legacy of Indian Country's "bordertowns" — the towns and cities outside Indian reservations, where Indigenous and white residents live side-by-side. His case is one of many documented in *Red Nation Rising: From Bordertown Violence to Native Liberation*, by Nick Estes, Melanie K. Yazzie, Jennifer Nez Denetdale and David Correia. The book illuminates the long-overlooked, amorphous violence that has plagued Indian Country's bordertowns, from early settler colonialism to today. Part manifesto and part historical analysis, *Red Nation Rising* reveals how settler colonialism still shapes the lives of Indigenous people — and how they are singled out by frontier-born legal, social and political realities and seen as possible targets.

Bordertowns began as mining and military outposts, established on the perimeters of reservations. Many are small towns, but others are growing cities like Albuquerque, Seattle and Rapid City. By *Red Nation Rising*'s standards, any white-dominated settlement on traditional tribal territory qualifies as a bordertown. Whether established by occupying U.S. military forces, vigilantes or land opportunists, these settlements — built on occupied Indigenous homelands — were violent from the beginning. Today, they are too often the site of police brutality, marked by workplace discrimination, extreme poverty, and a lack of housing and social services for Native people. Tribal jurisdiction is limited or nonexistent when it comes to prosecuting civil and criminal offenses. *Red Nation Rising* is a handbook for these issues, the first of its kind; it not only synthesizes the histories of tribes and surrounding settlers, it catalogs the "million daily indignities" of bordertown life.

Like Roxanne Dunbar-Ortiz's *Indigenous Peoples' History of the United States*, *Red Nation Rising*'s history is framed completely from a Native perspective. Rather than take a strictly scholarly viewpoint, the authors call out American colonialism in everyday life, declaring: "The settler got the world, the Indian got the reservation." Each chapter breaks down a series of terms — "anti-Indianism," say, or "Indian killers" — each serving as a starting point to explore the consequences of enforcing borders on Native people.

Many white Americans have a vague awareness of colonialism's lingering presence, but *Red Nation Rising* delves into it, focusing on the interactions between Natives and non-Natives in bordertowns. It's an issue that hasn't been widely or systematically studied, as shown by the lack of statistics on violence against Natives. The book helps remedy this by the stories it brings to light. Since the 1960s, vigilantes and police in Gallup, New Mexico, have killed numerous Native people or left them to die of exposure. Today, unsheltered people in Gallup and Albuquerque describe constant harassment by police, who go out of their way to detain them for loitering or public intoxication. In July 2014, three Albuquerque teenagers beat and killed two sleeping Diné (Navajo) men. This kind of lynching, the book explains, has a name: "Indian rolling," a term widely used after three Diné men were mutilated and murdered in 1974 near Farmington, New Mexico — killed by three white high schoolers.

Red Nation Rising pulls no punches, describing violence in ways that are sometimes difficult to read. Vigilantes are "Indian killers" and police, "professional Indian killers." Some readers might be offended by the tone and the blame placed on today's "settler society." Parts of the book can feel rushed, as if there were too much to explain to newcomers to the subject. The authors concentrate on documenting how extreme bordertown violence is; how can it be stopped unless we acknowledge the extent of its reach?

Despite the bleak and often-overlooked history they describe, the authors envision a hopeful future. The book ends with a 10-point manifesto that calls for solidarity to end the bitter legacy of settler colonialism that pervades cities and towns on Native lands. *Red Nation Rising* is an impassioned indictment of the violent logic of bordertowns — a rarely discussed political and societal reality. It reveals how deeply colonialism still impacts Indigenous peoples today.

Red Nation Rising: From Bordertown Violence to Native Liberation
Nick Estes, Melanie K. Yazzie, Jennifer Nez Denetdale and David Correia
176 pages, softcover: $17.95
PM Press, 2021.

The authors concentrate on documenting how extreme bordertown violence is; how can it be stopped unless we acknowledge the extent of its reach?

Heard Around the West

Tips about Western oddities are appreciated and often shared in this column. Write betsym@hcn.org.

BY BETSY MARSTON

MONTANA

Sean Hawksford's story on NPR's *Planet Money* should have been happy: He'd moved to Bozeman, Montana, married a local woman, and now they were getting ready to have their first child. Unfortunately, buying a home was proving insanely difficult; competitors were offering at least $500,000 *in cash* for every house that came on the market. Hawksford made 18 unsuccessful offers. Feeling desperate, he found a big piece of cardboard and made a sign that he held up on a busy street, even as the temperature plunged to a frigid 15 degrees. "Please sell me a home," said his sign. "Local business owner, wife pregnant, paid rent here 10 years." After three long, cold days, he got some leads, and at last, a resident who saw his sign "offered to sell him a house (because) they really wanted a local family to buy it." Hawksford's house hunt in an impossible market may have ended successfully, but sadly, that rarely happens in the West during these "Zoom boom" days.

Armando Veve / HCN

ARIZONA

One morning in Maricopa, Arizona, Francesca Wikoff looked out her window and realized that all four tires on the family's truck had been slashed. Even worse, there was a human finger lying on the driveway and a bloody trail leading straight to a nearby house. The night before, the man who lived there had gotten into an argument with her husband at a neighbor's house. Wikoff told 3TV/CBS 5 that she laughed all day to keep from crying about the incident: "You would think if you're gonna go to the hospital — especially if you just severed your finger off — you would take said finger with you." Her deduction that the guy made an *oops!* during his tire-slashing turned out to be correct. Police charged him with criminal damage.

THE NATION

From her first day on the job in 1972, Pat Schroeder, the first woman Colorado sent to Congress, knew that she'd never be accepted by the entrenched old guard. So she decided she might as well be herself, and so, for 25 years, she did just that, speaking out and fighting for what she believed in — including women's rights in the military and exposing gender bias in national health studies. (Believe it or not, premenopausal women were excluded from breast cancer studies.) She was also quick with a quip. Schroeder coined the term "Teflon president" to describe Ronald Reagan, adding that he probably "arms control" meant "deodorant." And her observation about a sex scandal involving Oregon Republican Sen. Robert Packwood still carries a sting today: "Women who sleep around in this city are called sluts. Men who do it are called senators." Schroeder unleashed a few more barbs in a recent conversation with the *Colorado Sun*. Asked about gun control, she wondered why "we can't do anything about guns just because, in 1791, they put in the Second Amendment." That doesn't mean she's entirely anti-gun: "I'm good with everybody having a musket if they want it." One of our favorite Schroederisms comes from Joan A. Lowy's fine biography, *A Woman of the House*, published in 2003. When Schroeder first came to Washington, her husband, Jim, a lawyer, worked in her office nearly every day. A longtime congressman scolded her, warning: "You're not supposed to have him on the payroll." "Oh, he's not on the payroll," Schroder assured him. "I just let him sleep with me." These days, Schroeder lives in Florida, which she described as "probably America's insane asylum for politics right now."

THE WEST

Reader Soren Nicholson, who calls himself an "optimistic realist," has a piquant Western sensibility. In Corona, New Mexico, he spotted an all-caps sign: "PLEASE DO NOT ABDUCT THE CATTLE," and in Montrose, Colorado, he noted another that promised drivers a "gluten free car wash." We also relish the closing thought expressed in Grand Canyon educator Marjorie "Slim" Woodruff's emails: "Life is not a journey to the grave with the intention of arriving safely in a pretty and well-preserved body, but rather to skid in broadside, totally worn out, and proclaiming: 'Wow, what a ride!'" More advice on the subject came from the late historian-rancher Peter Decker, of Ridgway, Colorado: "Live your life, do your work, then take your hat."

ALASKA

Good news for tourists passing through airports in Juneau, Fairbanks, Ketchikan and Anchorage: Starting June 1, the *Anchorage Daily News* reports, any passenger over 16 can get vaccinated at the airport. "We have excess vaccines," says Heidi Hedberg of the Alaska Department of Health. "So why not use them?"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Dr. Jani Ingram Leads Cancer Prevention
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#IAM THE WEST

HEIDI REDD
Rancher
Dugout Ranch, Utah

One of the key research items going on right now is on this cattle breed called the criollo (a desert-friendly variety originally imported from southern Spain). Nature Conservancy researchers are interested in this breed because the animals have smaller hooves, they range out farther, they have a more diverse diet, and they'll travel farther away from water. Will this be the breed that will be lighter on the landscape and be the cattle for here?

It's exciting, because as we get further and further into this changing climate, the more we know, and the more we can adjust to what's coming. Now that I'm 80, my son is managing the ranch. I have a lot of the pressure off me, and I can just go cowboying and not worry about finding feed and water for the cattle or paying the bills.

Do you know a Westerner with a great story?
Let us know on social.

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