High Country News

Searching for Pacific lamprey

The West's deadliest highways

Radical faeries in the desert

FERTILE GROUND

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Monica Blanchard, a fish biologist for the U.S. Fish and Wildlife Service, prepares electrofishing equipment to locate Pacific lamprey in the Stillaguamish River near Granite Falls, Washington. **Jovelle Tamayo / 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. Subscriptions to HCN are $45 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.

EDITOR'S NOTE

Holding each other up

I RECENTLY WENT TO SEE a documentary about the coast redwoods at a local film festival. I mean, how could I not? They're the tallest trees on the planet, reaching over 300 feet into the sky. There are whole ecosystems in their crowns; animals and other plants spend their entire lives in the treetops. Coast redwoods can live for more than *two millennia*. And they are highly adaptable, growing two kinds of needles — one that absorbs light, another that takes in water, allowing the trees to simultaneously take advantage of both moist and dry conditions. They communicate with each other through vast shallow interlacing root systems that extend over 100 feet from the base of each tree, which means that they literally hold each other up.

I was glad that the film, *Giants Rising*, prominently featured Yurok tribal members who are working to restore the redwood forest as part of their own journey of healing from the deep and lingering injustices of colonialism. The Yurok are leaders in the restoration of the coast redwood ecosystem. The film also featured a professor of social ecology who is studying the impact of awe on the human psyche. It turns out we are wired to feel awe in the presence of natural splendor, to witness the staggering complexity of nature and wonder: How is the world this intricate, this expertly engineered, this stunningly beautiful? And after all that exhilaration, we feel calmer, happier.

This past year, my team and I have been working to redefine our main coverage areas and beats. At some point in that process, I felt compelled to add "awe" to the list of beats. This seemed somewhat fanciful at the time, but I believe it belongs there. *HCN* brings you hard-hitting journalism, but also heart-opening stories about the West's miraculous lifeforms and landscapes. This month's cover story, "Regeneration Underground" *(p. 32)*, is exactly the kind of story I had in mind. Did you know that many native plants can store their potential futures in seed banks below the surface of the soil, waiting — sometimes for centuries — for the right conditions to sprout and flourish? In this story, too, Indigenous people are helping to spread this knowledge and apply it broadly to the field of ecological restoration, reminding us all of the many ways that people and nature can hold each other up.

Jennifer Sahn, editor-in-chief

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ON THE COVER

An artistic depiction of a sagebrush steppe ecosystem.
Illustration by Alex Boersma / HCN

Documents and diaries from the Issei Poetry Project at the Japanese American Community & Cultural Center in Los Angeles, California.
Stephanie Shih / HCN

FEATURES

Faces like Mirrors 24
Lesbians who showed the way.
PHOTOS BY MORGAN LIEBERMAN
TEXT BY EMILY WITHNALL

Regeneration Underground 32
The seeds we need to power ecological restoration may already be present, hiding just below the surface.
BY JOSEPHINE WOOLINGTON
ILLUSTRATIONS BY ALEX BOERSMA

REPORTAGE

As migration routes shift, so do deaths 7
Local and state responders are scrambling to keep up.
BY CAROLINE TRACEY

'We don't want a negative headline' 9
How communications from public officials downplay the danger of PFAS-contaminated water.
BY SARAH TRENT
PHOTOS BY BROOKE HERBERT

Saving the Pacific lamprey 12
Documenting populations of the ancient species is a step toward ensuring its survival.
BY NATALIA MESA
PHOTOS BY JOVELLE TAMAYO

Can affordable housing for Indigenous communities work? 14
The question looms large as Denver breaks ground on its first affordable housing project for Indigenous people.
BY RAKSHA VASUDEVAN
PHOTOS BY ELI IMADALI AND EVAN BENALLY ATWOOD

Highways of hazard 18
America's car culture kills people and wrecks communities.
FACTS & FIGURES BY JONATHAN THOMPSON
ILLUSTRATION BY HANNAH AGOSTA

BOOKS, CULTURE & COMMENTARY

Nocturne 11
POEM BY GERI DORAN

Taken by the wind 45
Issei poetry between the world wars.
ESSAY BY KENJI C. LIU
PHOTO BY STEPHANIE SHIH

Radical faeries 48
How a gathering of gay men in the Sonoran Desert started a worldwide movement rooted in nature.
CONFETTI WESTERNS
BY MILES W. GRIFFIS

#iamthewest 52
Naelyn Pike, San Carlos Apache Tribe executive assistant and Apache Stronghold member, San Carlos, Arizona.
BY JAKOB BARLOW

OTHER MATTER

EDITOR'S NOTE 3
LETTERS 6
HCN COMMUNITY 20
DEAR FRIENDS 23
HEARD AROUND THE WEST 50

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GREEN COLONIALISM MARCHES ON

I am a 70-year-old enrolled Yakama and Wenatchapam on my maternal grandmother's side. I remember the "Fish Wars" on the Columbia River as a youth, and relatives hunting elk on ceded lands and getting arrested for exercising treaty rights. Washington state has been an enemy of treaty rights for as long as I can remember.

Such an attitude reaches back to Congress and the Treaty of 1855 and earlier. It will remain so into the future. This fact is evidenced by your informative article ("Who's Protecting Badger Mountain?" February 2024) detailing one employee's experience working for the state of Washington.

In my experience, an endemic racist attitude is prevalent within Washington's governmental agencies.

The enemies *are* within. Sound the warning, and trust the Creator!

Steven Hilliard
Las Cruces, New Mexico

Having worked with an independent archaeologist on clearance surveys on the Colorado Plateau, I can affirm that she experienced pressure from energy companies to produce reports favorable to them. Integrity has its costs.

The industrial revolution needs an industrial renovation that includes Indigenous re-emergence.

Steve Moore, via Mastodon

SELF-SERVING HUMANS

Humans commoditize animals, move them hundreds of miles, ignore their sentience while focusing on self-serving ends, and then vilify them for having the temperament, courage and intelligence to defend themselves against an invasive species (humans) now recognized as a clear threat ("Learning To Live With Musk Oxen" February 2024). The typical human response: Declare open season.

Henry Kimbell
Rio Rancho, New Mexico

MAKING SENSE OF MAKE SUNSETS

I appreciate the concerns voiced by people of the tribes mentioned ("What to make of Make Sunsets" February 2024). They raise serious concerns that all living beings should be considering. Clearly, more research into solar geoengineering is needed. The term was unknown to me before reading this article.

Katherine Brown
Cochise, Arizona

DEVELOPMENT VS. INSURANCE

I was glad to see Kylie Mohr's recent interview with Dave Jones, former California insurance commissioner ("Homeowner's insurance is going up in smoke" January 2024). He is correct in his assertion that climate change plays a pivotal role in rising property insurance costs. I am writing, however, to protest his glaring omission of the role that development patterns, specifically suburban and exurban development, have played in ballooning disaster risk throughout the West and Southeast.

It is past time that we took a decisive stand to ensure that planning acknowledges the risks of expanding the wildland-urban interface. We must empower our land managers to treat fire as a matter of public and forest health; hopefully, the intelligentsia, such as Mr. Jones, can recognize this.

Adam Cook
Missoula, Montana

With its complete emphasis on climate change, the interview with former California Insurance Commissioner Dave Jones substantially missed the mark. Large-scale wildfires are part of the natural ecology of California's chaparral. They occurred before climate change set in and will continue. What is immediately driving the fire crisis in California is the persistent expansion of housing into high fire-hazard locations. Expansion of the "wildland-urban interface" also leads to more human-caused ignitions and to the frequent fires that are steadily converting native vegetation to flammable weeds.

Dan Silver, executive director, Endangered Habitats League
Los Angeles, California

EVEN MORE TOXICITY

Thank you to Brooke Larsen and Luna Anna Archey for the informative "Toxic tour of the Great Salt Lake" (December 2023). As one who has fought numerous such projects and programs in and around the lake and Utah's West Desert over the last 40-plus years, I understand how important it is to inform and remind folks of our propensity to damage this fragile resource.

In that spirit, I would add a few other neighboring threats and toxic legacies in the Great Salt Lake watershed (clockwise east to west on the map): Western Zirconium (sole U.S. manufacturer of cladding for nuclear fuel rods); Hill Air Force Base (groundwater contamination, air and noise pollution); Northrop Grumman Corp. (production of the new Sentinel ICBM); the Tooele Army Depot (open detonation and burning of old munitions) and the Chemical Weapons Demilitarization Facility (completed nerve and blister agent destruction); Aragonite Incineration Facility (hazardous waste incinerator); Clean Harbors (hazardous waste landfill); Energy Solutions (radioactive waste landfill); and Dugway Proving Ground (U.S. Army's premier site for testing of biological and chemical weapons defense).

Kind of resembles a sacrifice zone, doesn't it?

Steve Erickson
Salt Lake City, Utah

CORRECTIONS

In "Who's Protecting Badger Mountain?" (February 2024), we noted that two Tetra Tech supervisors pled guilty to falsifying soil samples. They were no longer employed by a subsidiary of Tetra Tech at the time of their plea. We also inadvertently shrank Colorado's public land in "Can coexistence be bought?" (February 2024). The state has more than 23 million acres, not 8.3 million. We regret the errors.

REPORTAGE

As migration routes shift, so do deaths

Local and state responders are scrambling to keep up.

BY CAROLINE TRACEY

The terrain surrounding the U.S.-Mexico border near Sunland Park, New Mexico, is treacherous. The soil is sandy and hard to walk on, and the topography varies. **Paul Ratje / AFP via Getty Images**

DURING CAPT. ABRAHAM GARCIA'S first two decades at the fire department in Sunland Park, New Mexico, most of the calls he received were relatively simple to resolve. A softspoken man in his late 30s, Garcia described wrangling rattlesnakes and removing beehives. We were sitting in a fire station truck on a chilly October evening, waiting for a freight train to pass. About 400 feet of desert lay between the railroad tracks and the U.S.-Mexico border wall. On one occasion, he recalled, he reassured a concerned resident that the creature in her yard was not a mountain lion; it was a raccoon.

But around 2017, the year construction started on New Mexico's section of border wall, Garcia's work began to change. He and the other firefighters found themselves responding to gruesome car crashes, the result of high-speed chases. People fell from the border wall and died from exposure. Sunland Park's 24 firefighters grew accustomed to seeing open fractures and calling for helicopters to transport victims to hospitals in Las Cruces.

According to U.S. Customs and Border Protection data, 8,050 migrants perished in the Borderlands between 1998 and 2020, though researchers believe the real figure to be much higher, since many remains are never recovered or reported to authorities. Few of those deaths took place in New Mexico: In 2015, for instance, the state's Office of the Medical Investigator (OMI) counted just two migrant deaths, according to data shared with *HCN* by a researcher. But in 2021, that number jumped to 36, and in 2022 to 58. This year, there were at least 109 deaths, most of them around Sunland Park, a town of 16,000 set amid the creosote and saltbush that goes right up to the Texas state line, just nine miles from El Paso. First responders and medical investigators are adapting, but they desperately need more federal and state support.

In 1994, the Border Patrol inaugurated a strategy called Prevention Through Deterrence, which increased enforcement at common urban crossing points in order to funnel migrants toward harsher, more remote areas, under the logic that it would "deter" them from entering the country. Many researchers blame this tactic for the rise in deaths. Border enforcement eventually pushed migration routes from southern Arizona into the vast ranchlands of Texas, and relatively few people passed through New Mexico.

But in recent years, Texas has deployed its National Guard to increase enforcement on its segment of the border, and that in turn appears to have forced migrants over the state line. In early 2023, Border Patrol stated that the El Paso sector — which includes all of New Mexico — became the border's busiest for the first time since Prevention Through Deterrence began. "With this increased enforcement (in Arizona and Texas) … we are seeing more and more people getting pushed into that area," said Daniel Martínez, co-director of the University of Arizona's Binational Migration Institute.

PEOPLE FROM ALL OVER the world cross through Sunland Park, but first responders said they mainly come from Mexico, Brazil, Cuba, Venezuela and Central America. Many have endured a long journey, crossing the treacherous Darién Gap on the Panama-Colombia border and trekking through Central America and across Mexico. Some struggle to acclimate to the high desert climate with its extreme heat and cold; El Paso saw a record-breaking 68 days over 100 degrees Fahrenheit last summer.

Though just a few miles — or less — lie between the border and the roads where migrants can be picked up, the terrain is rough. Its openness is disorienting, the sandy soil is

hard to walk on, and the topography varies. Those who want to avoid the border wall must traverse Mount Cristo Rey, where there is a gap. "I didn't understand why they were dying until I started going out there on the (ATV) — *I* was getting lost," said Garcia, who has lived in Sunland Park his whole life.

Others die after falling while attempting to scale the wall, or from a combination of injuries and exposure. CT scans conducted by OMI reveal fibula and foot fractures in remains recovered from within a mile of the wall.

"Maybe the dehydration is survivable. Maybe the lack of food is survivable. Maybe the broken ankle is survivable," said Heather Edgar, OMI's forensic anthropologist. "But when you put them all together and you're disoriented and you're lost … it's not survivable."

Even if people manage to reach their pickup point, they remain at risk. Between 2017 and 2022, 13 people died in Border Patrol car chases in southern New Mexico. Watchdog organizations such as the Southern Border Communities Coalition and the Washington Office on Latin America have criticized these vehicle pursuits, and after a 2022 fatality in neighboring Santa Teresa, New Mexico, six members of Congress asked the agency to revise its pursuit policy. (Subsequent agency policy changes have not prohibited the chases.)

In response, the Sunland Park Fire Department has retrofitted two all-terrain vehicles, a Polaris Ranger and a Humvee, with body stretchers and nearly doubled the number of firefighters on duty at any given time. But all this comes out of the department's operating budget, and though Chief Daniel Medrano would like to do more and provide his staff formal training in search and rescue, he said he lacks the resources. Even when the fire department assists the Border Patrol, a federal agency, it receives no additional funding.

"I'm throwing my hands up and giving up on federal help," Medrano said. "We're told constantly to apply for grants. … Larger cities have grant writers on staff that can help with that. I do not."

At OMI, the office's autopsy and anthropology workload has grown, according to Edgar, the forensic anthropologist. OMI has received federal grants for some migrant-death related work, but its operations have been strained by the number of deaths, and it needs additional funding from the state to hire more local field investigators, increase storage space and pay for DNA analysis.

Edgar is also working to improve the identification process, using research that was undertaken to guide the state's response to missing and murdered Indigenous people. From 2016 until last October, New Mexico had a task force dedicated to developing protocols to better respond to Indigenous deaths. Contemporary forensic databases have not prioritized collecting data regarding Indigenous, Hispanic and mixed-race people from the U.S. and Latin America. Because forensic anthropology develops biological profiles by comparing remains to reference samples, this has hampered efforts to resolve cases in the region.

Still, the work continues, thanks to grant funding. Edgar hopes to encourage other anthropologists to rethink their understanding of population affinity — the features shared by cultural groups — and to incorporate not only biological, but also ethnographic and historical information, in developing forensic profiles for unidentified people.

"If we can improve identification for Native Americans," Edgar said, "at the same time, we will improve it for Hispanic Americans in the Southwest and for migrants."

ON THE WAY BACK to the station, the truck radio alerted Garcia to a fire in the Rio Grande's dry riverbed. The smoke plume was blowing toward the nearby El Paso Electric plant. This wasn't normal, he said. He turned on the truck's lights and raced down the highway.

When we arrived, Garcia quickly let me out. From a nearby road, I watched as the eight firefighters on duty that evening sprayed the orange flames with water and foam from the department's two trucks.

After the fire was contained, another member of the department explained that they had found clothing nearby. A cold front had arrived suddenly that day, and migrants most likely started a fire, trying to get warm while waiting to be picked up.

Responding to the fire, like responding to migrant deaths, used yet more resources and manpower. Many Republicans and some Democrats argue that U.S. tax dollars shouldn't be spent saving undocumented non-citizens. Edgar sees it differently.

"Our country steps into humanitarian crises all over the world," she said. "Why would we not do it inside our own boundaries?"

Doña Ana County firefighters transport a migrant who died in the New Mexico desert this September. First responders and medical investigators are adapting to increased numbers of migrants crossing the U.S.-Mexico border in New Mexico, but they desperately need more federal and state support. **Courtesy of Omar Ornelas / El Paso Times**

REPORTAGE

‘We don’t want a negative headline’

How communications from public officials downplay the danger of PFAS-contaminated water.

BY SARAH TRENT
PHOTOS BY BROOKE HERBERT

Sarah Ferris with her daughters, 4-month-old Ruby and Avigail, 7, outside their home in Vancouver, Washington, last November.

WHEN THE SIMPLE blue-and-white postcard arrived in January 2023, Sarah Ferris missed it. The mailer, sent by the city of Vancouver, Washington, told 270,000 municipal water users that a group of chemicals called PFAS had been found in city water. Levels were low, the postcard said; the city would soon test again to comply with state law and share more information.

When a more detailed flyer arrived in April, Ferris looked it over. A chart showed that water at three of the city’s nine wellfields had tested above the state limit for two common PFAS chemicals, PFOA and PFOS. Other sections called these levels “very low,” and said experts were “still learning about their health impacts.”

Ferris tried to decipher it all. “I was scanning, not really having time to delve into all of it and decode,” she recalled. She was busy, six months pregnant, finally over the first-trimester nausea but anxious about her high-risk pregnancy. There was also a new part-time job and an impending breakup that would soon make her a single mom. Ferris dropped the flyer onto a stack of papers to read later, but never did.

She knew nothing then about PFAS, which have been linked with both preterm birth and low birthweight, along with preeclampsia, birth defects and developmental delays. She didn’t know that as a pregnant person, she and her baby were among those at highest risk from these chemicals. PFAS, frequently called “forever chemicals,” can accumulate in the body — even faster in a baby’s — and persist for years.

Even if she had studied the flyer, she might not have fully understood the risks. Key details were missing, including that three more wellfields had tested nearly as high, putting half the city’s water supply near or over the state limit. It downplayed overwhelming evidence of the health risks and failed to mention that the Environmental Protection Agency’s latest guidance is that no amount of PFAS in drinking water is safe.

“We want to be as transparent as possible with this,” said Tyler Clary, Vancouver’s water engineering manager, who helped shape the city’s PFAS communications. “We don’t want a negative headline.”

But by trying to minimize public alarm, officials here — and all over the U.S. — have fallen into a pattern of communication missteps, experts say. Even well-meaning officials often provide inadequate or misleading information, putting communities at higher risk.

Researchers estimate at least two-thirds of all U.S. residents’ water is contaminated by PFAS. That number will likely grow as the EPA tests more water systems. In contaminated communities, “it’s very important to acknowledge that a terrible thing has happened,” said Alan Ducatman, a professor emeritus at West Virginia University. “That’s the opposite

of what so many communications do. They just dismiss the problem."

PFAS — per- and polyfluoroalkyl substances — have been in the public eye since the early 2000s, after a series of lawsuits revealed that PFOA pollution from a West Virginia chemical plant was killing animals and people. Unlike contaminants like lead, PFAS aren't a single chemical, but a class of more than 9,000, each designed to be nearly indestructible. They're ubiquitous, used in cookware, pizza boxes, carpeting and other products to make them waterproof, nonstick or stain-resistant. They leach into groundwater near chemical plants, factories, military bases that used PFAS-containing firefighting foam — even septic systems, where particles in water and waste accumulate.

PFAS are also tiny: Their contamination is measured in parts per trillion (ppt) — the equivalent of a single drop of water in 20 Olympic-sized swimming pools. That comparison frustrates some communications experts, who say that when something is described as that small, it's easy to dismiss, even though PFAS' health effects at low levels are well documented.

Those effects aren't easy to explain, either: Different PFAS affect many systems in the body, but over long time periods. Thousands of studies have concluded that various PFAS increase the risk of myriad conditions including high cholesterol, kidney cancer and liver disorders. But it's not easy to attribute these diagnoses to any one thing, making it hard for individuals to connect the dots.

Chemical giants DuPont and 3M had long known about the health dangers of PFOA and PFOS, but it took federal regulators decades to catch up. Because the EPA was slow to set rules, some states, including Washington, set their own — but these vary widely. The EPA's most recent guidance offers welcome clarity, experts say: The ideal goal is zero. But zero isn't realistic, so the agency proposed a limit that current tests can reliably measure: 4 ppt for PFOA and PFOS. That rule, proposed in 2023, has not been finalized; when it is, it won't take effect for three years.

The proposed rule, plus an uptick in lawsuits against chemical companies, has thrust PFAS back into headlines. But they're still not a household name. "Talking to regular working folks in our community, they don't know what PFAS are," said Kim Harless, a Vancouver city councilmember.

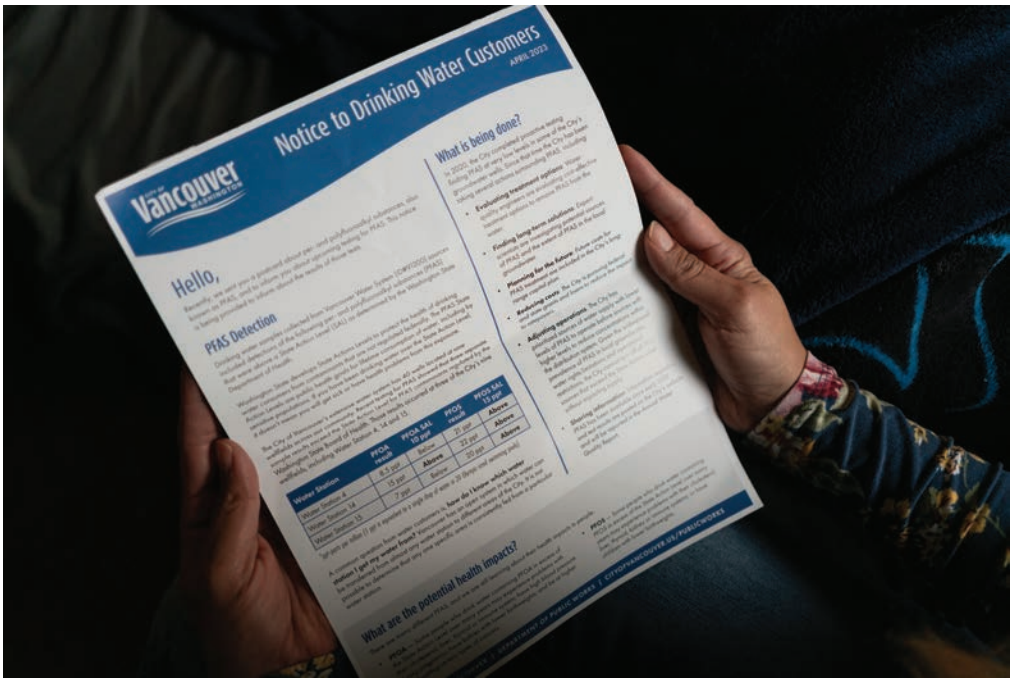
Vancouver officials decided to focus on the state limits in public communications — 10 ppt for PFOA, 15 ppt for PFOS — and haven't included the EPA's guidance of zero anywhere. Washington's limits "are the known, those are the required, so that's what we follow," said Laura Shepard, city communications director. Focusing on pending rules or unenforceable goals would be confusing, she said: "It starts to get muddy really fast."

Ducatman, who wrote a 2022 paper analyzing — and criticizing — many agencies' PFAS communications, disagrees. "I think it's reasonable to tell the truth: To say, 'We're not sure there's any safe level, and we're going to go with this standard,'" and then explain why. Suggesting that higher levels are safe, he said, might foster distrust in the long run.

MARIE'S BABY was five months old when she opened the April flyer. A physician assistant as well as a mom, she wanted to understand everything. "I read it a million times," she said, and then did more research online and in medical journals. (Because her employer hasn't authorized her to speak on this public health matter, Marie asked to be identified by only part of her name.)

The flyer recommended that people who were pregnant, breastfeeding or mixing formula switch to using safer water, and Marie was relieved that her sink and fridge already had filters. But after reading it, she also assumed that the city's water was still below a safe threshold, and that scientists weren't sure of the health impacts. Months later, she was among dozens of women in a Vancouver moms' Facebook group who replied to an *HCN* inquiry seeking pregnant and nursing peoples' experience getting — or not getting — information about PFAS. Sitting on her kitchen floor as her 3-year-old clung to her, Marie and her husband were surprised to learn from *HCN* that much of the city's water was near or over state limits, with most of it exceeding both EPA guidance and the proposed rules. They said they would have been even more careful, had they known.

This lack of sufficient information is part of a nationwide pattern. Papers by Ducatman and others, including Whitman College environmental sociologist Alissa Cordner, analyze communications from almost every state's health or environment agency along with dozens of local and nongovernmental agencies, outlining common failures.



Sarah Ferris holds a flyer she received last year from the city of Vancouver informing residents that PFAS had been found in the city's wells.

Cordner watches for two red flags.

First, she said, officials often emphasize how low levels are, without mentioning that they still carry risk. Vancouver's flyers and website emphasize the city's "low" or "very low levels."

Vancouver's levels *are* far lower than some communities: Airway Heights, near an Air Force base in eastern Washington, measured PFOS at 1,200 ppt in 2017, and PFOA at 320 ppt. Most of Vancouver's wellfields have tested between 5 and 25 ppt. "All we can do is compare ourselves to others," Clary said.

But being lower by comparison doesn't mean they're safe.

"I would not be comfortable saying that 20 ppt is safe," said Anna Reade, the lead PFAS scientist at the nonprofit Natural Resources Defense Council in San Francisco. Cancer and other risks are elevated at those levels, she said. And children, who consume more water for their weight, face even higher exposures.

Second, officials often claim that health effects are unknown or in doubt. Though Vancouver did list some possible effects, their communications implied a lack of certainty: "Scientists are still studying how long-term exposure to PFAS may affect people's health," reads the city website. That's not wrong, but Cordner and Ducatman say emphasizing uncertainty is misleading.

"You don't want to exaggerate," Ducatman said. "But at this point, (we know) it is more likely than not to cause certain outcomes. It's OK to be transparent about those."

Asked for comment, Vancouver's communications team doubled down on the city's approach. "It's really irresponsible to communicate about something when it is unknown, when the research is still being done," Shepard said. She and Clary, who trained in civil engineering, said they relied on state and county health departments for their information; in an interview with *HCN*, county officials also emphasized the unknowns.

But PFAS researchers say that the evidence pointing to specific health effects is abundant, compelling and consistent. And communications experts say telling people this is reasonable.

"What qualitative studies find is that people want to know. They don't panic," Cordner said. "They're able to take in information and use it to inform decisions for their health and their family's health."

By some measures, Vancouver outperformed many agencies. For example, the city translated materials into five locally common languages. And while many agencies emphasize personal responsibility, Vancouver shared what's being done to address contamination city-wide.

Those steps, however, will take time. Vancouver is designing a filtration system now for one of the smallest, most contaminated sites, but an engineering firm estimated that building facilities to bring PFAS below state limits city-wide would take at least six years and $170 million. The proposed EPA limits would require far more.

Until then, public health communications may determine how people respond — or what they demand from officials. Every expert interviewed for this story said that if they lived in Vancouver, they'd filter their water, especially if they were pregnant or nursing. Councilmember Harless hopes that officials will help low-income households buy filters, but added that further action may depend on public sentiment. PFAS experts hope that greater awareness might also encourage people on private wells — which won't be addressed by public measures — to test or treat their water.

FERRIS STILL isn't sure that she's protecting her family. She drinks a lot of water to breastfeed, and struggles to find guidance she trusts. Even her doctor couldn't answer her questions.

The night the flyer came, she'd rushed out and bought a Brita pitcher, using it every day to fill and refill a 40-ounce metal bottle, plus a smaller one for her 7-year-old. She then saw online that Britas don't reliably filter PFAS, so she started buying bottled water instead — unaware that it's not tested for PFAS. Finally, she bought a $50 faucet-mounted filter certified to reduce PFAS. which requires a $20 cartridge change every six months — expenses only possible because her ex-partner helped.

Each revelation has eroded her trust in city officials. "It makes me wander a little bit down that trail of, oh my gosh, what about the people that don't know? And how much don't I know?"

She still worries.

POEM

Nocturne

By Geri Doran

The one star brighter than all the others,
faint whiff of wood smoke riding
some modest currents of air.

The cabin at my back a brace against it all—
First star, wish I make, chimney air.
Magnet dark, magnet death's
double-dare.

WEB EXTRA Listen to Geri Doran read her poem at **hcn.org/nocturne**

Monica Blanchard, a fish biologist for the U.S. Fish and Wildlife Service, uses electrofishing equipment to track down Pacific lamprey at Boardman Creek near Granite Falls, Washington, last October.

REPORTAGE

Saving the Pacific lamprey

Documenting populations of the ancient fish is a step toward ensuring their survival.

BY NATALIA MESA
PHOTOS BY JOVELLE TAMAYO

TAKING DELIBERATE steps along the rocky bank, Monica Blanchard waded into the Stillaguamish, a roiling river that snakes through the lush conifer forests of northern Washington. It was a rare cloudless October day, and golden maple leaves rained down, flapping in the breeze like butterflies before joining their withered brethren on the riverbank. Blanchard, a fish biologist for the Washington Department of Fish and Wildlife, held two long white sticks in her hands — electrofishing wands designed to stun fish. The wands were connected to a backpack outfitted with knobs and switches to control the small electric current that runs through them. "This is my Ghostbuster backpack," Blanchard joked. As the gray-green river gurgled around her ankles, she dipped the wands into the water and sent out tiny pulses meant to coax lamprey out from the sediment where they'd buried themselves. Sure enough, a larval lamprey wriggled out of the mud.

Known for having circular sucker mouths ringed with tiny teeth, adult Pacific lamprey resemble miniature versions of the sandworms from *Dune*. In their larval stage, they're eyeless filter feeders. But once they mature, they become a fatty, calorically dense meal for predators like otters and sea lions; biologists joke that lamprey are little hot dogs in the water.

Lamprey have an ancient lineage — scientists believe they first emerged 400 million years ago. Though once abundant throughout the Northwest, their descendants are now under threat. In some regions, lamprey numbers have fallen by over 90%. Blanchard is here today to collect some much-needed data on the ancient fish that could help prevent their disappearance.

"They're one of the world's oldest fish," Blanchard said. "And we know almost nothing about them."

TRIBES ALONG the Columbia River, including the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Reservation and the Nez Perce Tribe, have warned of lamprey's decline for decades. The fish are what Native people call a first food: They were a source of sustenance during frigid Northwest winters, and they appear in foundational tales, origin stories and ceremonies, so that preserving lamprey is also

a way to preserve a tribe's cultural identity. The fish's decline is largely due to settler colonizers, who built dams and culled lamprey to make room for salmon. Other factors, including climate change and habitat loss, have pushed Pacific lamprey to local extinction in parts of the Northwest, and yet they're often an afterthought in conservation plans.

Scientists agree that documenting lamprey is the first step toward ensuring their survival. For the last seven years, Kellie Carim, an aquatic research biologist for the United States Forest Service, has led a major lamprey-tracking project. More than 100 scientists and volunteers have hiked creek sides and riverbanks throughout Idaho, Washington and Oregon, collecting data on where lamprey dwell. "Once we have that understanding, we can then start to understand and monitor for changes in that presence and distribution," Carim said.

Scientists like Blanchard often use electrofishing to study lamprey. The equipment is cumbersome, though it's helpful to have when researchers need to see the fish. Still, scientists like Blanchard also use another method to survey water and soil for bits of lamprey DNA — a technique called environmental DNA, or eDNA. After Blanchard electrofished, she placed a small plastic cup underwater. The bottom of the cup held a circular paper filter, and Blanchard will send it to Missoula for Carim to examine.

So far, Carim has analyzed more than 1,000 eDNA samples throughout the Pacific Northwest, as part of the eDNA Basin-Wide Lamprey Inventory and Monitoring Project. Scientists with the Pacific Lamprey Conservation Initiative, a coalition of more than 50 tribes, agencies and organizations, then combined that data with estimates of the fish's historic range to assess lamprey's conservation status. They estimate that lamprey have been blocked from or not found in more than 75% of their historic range in most of Washington, Oregon and Idaho, as well as in many parts of California. The data suggests that lamprey are at risk of local extinction in waterways across Puget Sound, since they have only been located at less than 25% of the streams they once occupied.

"I see it as a call to action," Blanchard said. With better data, scientists can focus their efforts on where lamprey are most imperiled, and habitat managers in those watersheds can begin taking action to conserve them.

Often, habitat managers don't even know whether lamprey are in a waterway before restoration projects begin. "Everyone is salmon-centric," said Rebecca Mahan, a habitat biologist for Clallam County. While lamprey and salmon face similar threats — mainly dams that block their access to upstream habitat — most habitat restoration and barrier removal efforts in the Northwest have focused on preserving salmonids. In some cases, those efforts can hinder lamprey. For example, the Washington Department of Transportation has replaced more than 100 culverts to help salmon swim under bridges and roadways. But lamprey are weaker swimmers than salmon and sometimes find the fast-flowing water inside culverts difficult to navigate. Fish ladders, too, are not built for them; lamprey find sharp corners and vertical sides nearly impossible to sucker onto.

Yet experts believe that lamprey will rebound, given the opportunity. "They can be easy to reintroduce if the habitat is good enough," said Justin Stapleton, a project biologist for the Lower Elwha Klallam Tribe who studies lamprey. Throughout the Northwest, habitat restoration and reintroduction projects have successfully returned lamprey to regions from which they'd vanished. In 2013, at Bonneville Dam, 40 miles east of Portland, river managers introduced passage structures whose slow-moving water, smooth metal surfaces and angled ramps were specifically designed for lamprey — and biologists saw record numbers pass through the dam in 2023.

Back near the Stillaguamish River, Blanchard scrambled down a steep bank to the edge of a murky creek. Here, the water flowed gently over a muddy bed, and piles of leaves rotted in the water. It was perfect larval lamprey habitat, she said: soft, silty sediment, lots of decay. Lamprey eDNA had been found upriver of these locations, but she hadn't yet found lamprey in the creek. She donned her electrofishing gear and got to work.

"They're one of the world's oldest fish. And we know almost nothing about them."

Blanchard holds a juvenile Pacific lamprey specimen she collected in the Stillaguamish River near Granite Falls, Washington.

REPORTAGE

Can affordable housing for Indigenous communities work?

The question looms large as Denver breaks ground on its first affordable housing project for Indigenous people.

BY RAKSHA VASUDEVAN

MOST RESIDENTS OF DENVER'S Safe Outdoor Space live in ice-fishing tents. But Grant Davis has his own tiny home, complete with built-in heating and cooling and a door that locks. Inside, there's a narrow bed, a pillow plastered with NFL logos, and a portable speaker that lights up in rainbow colors. Also: a bag of bath salts. Where would he use those, I asked? Davis chuckled. He didn't know, either. Though the Colorado Village Collaborative's Native-Inclusive Safe Outdoor Space (SOS), where he's lived since last February, offers showers, laundry, and housing referrals, there's no bathtub in sight.

People here call Davis, 76, "grandpop." He first visited Denver in 1971. The mountains reminded him so much of home — he's a member of Alaska's Tlingit tribe — that he stayed. Since then, he'd found work at the food bank and Hertz car rental, and received income from Social Security, the VA (he was a U.S. Navy cook), and his tribe. It was rarely enough for rent, though, and over the last decade, he's cycled between staying with relatives, sleeping in his car and staying at shelters like this one. But he hopes that will soon change.

Denver's first affordable housing complex designed for Indigenous people is set to break ground this year at 901 Navajo Street. About half of its 190 units will be for people coming out of homelessness, while the other half will house families earning no more than 40%-60% of the area's median income. Denver Indian Health and Family Services will also operate a medical and dental clinic onsite.

Indigenous people comprise 2.6% of America's population, but in 2023, they accounted for 3.9% of those experiencing homelessness. The inequity is acute in Western cities: Indigenous people make up only 1% of the population of King County, Washington, home to Seattle, but 9% of those experiencing homelessness. In Denver, they are overrepresented in the unhoused population by 400%.

More affordable housing seems like the obvious solution. But America's history of affordable housing for Indigenous people is complex, muddied with broken promises, arcane laws, and a toxic loneliness that haunts even those who do find housing.

Will 901 Navajo give Indigenous folks a place to call home? Or will history repeat itself, and the homes they were promised end up housing others?

THE 1956 INDIAN Relocation Act sought to further assimilate Indigenous people by encouraging them to relocate to cities. The government promised to help them with housing and employment, but instead they were often left to find jobs, housing and transport on their own, all while facing discrimination from employers and landlords.

Today, 86% of Indigenous people in America live outside reservations, often in cities like Denver, Seattle and Portland, where they resettled following the Relocation Act. As more people leave reservations, they gravitate towards places where they already have family or friends — which also tend to be places where housing is expensive. That's one reason that more than 16,000 Indigenous people in the mountain West were homeless last year.

Bill Ziegler, Lakota, former executive director of Denver's Native American Housing Circle, which is leading the 901 Navajo project alongside nonprofit developer Mercy Housing, sees the complex as an opportunity to heal from generations of dispossession.

"It's going to finally be a place where we are tribal again," he said. "Multi-tribal."

But history shows that much can still go awry. Portland, Oregon's Native American Youth and Family Center (NAYA) designed its "Generations" building, a 40-unit affordable housing complex, for Indigenous families, foster children and elders. But nine months after it opened in February 2017, less than half its residents identified as Indigenous. Among other reasons, NAYA blamed federal housing laws that forced it to rent to non-Indigenous people who applied first and more easily met requirements, including no criminal history or recent evictions.

Similarly, in Seattle, King County introduced a new vulnerability assessment system in 2013 that did not take an individual's race into account. Soon after, United Indians of All Tribes Foundation's Labateyah shelter for Indigenous youth filled with non-Indigenous teens.

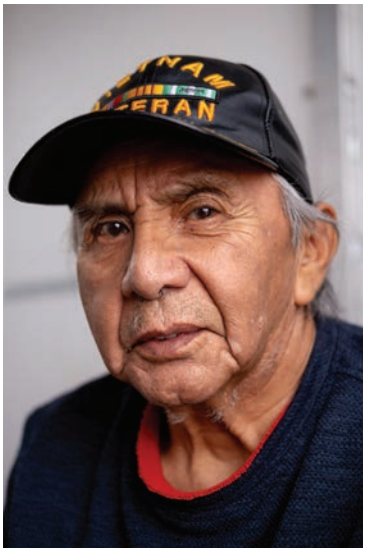
Blame the Supreme Court: The most conservative bench in 90 years has begun deeming more racial classifications unconstitutional, as in last summer's ruling against college affirmative action. "It doesn't matter whether the purpose is good (as in) designed to remedy past harm, or whether it's based on invidious stereotypes or the intent to discriminate," said Stephen Menendian, assistant director of UC Berkely's Othering and Belonging Institute.

Public agencies and private providers that receive federal funding cannot discriminate *or* prioritize tenants by race. It's a stipulation that frustrates many providers.

"If you're talking about fair housing, you have to address inequity," says Natalie Hayes, site manager at the Safe Outdoor Space where Davis was living. The "Native inclusive" site was set up to shelter Indigenous people, but because it receives federal funds, it must welcome people of all races. At times, the site has been full, with at least some of the residents being non-Indigenous. That means other Indigenous folks are forced to remain unhoused while waiting for a spot.

FINDING HOUSING is particularly labyrinthine for those who

Grant Davis walks back to his tiny home at Colorado Village Collaborative's Native-Inclusive Safe Outdoor Space in Denver, Colorado *(above)*. Natalie Hayes, site manager at the Safe Outdoor Space, in her office *(right)*. Grant Davis *(far right)*. **Eli Imadali / HCN**



need it most. SOS staff help residents apply through the Denver Housing Authority, county-led housing lotteries and veterans' services. Compiling all the paperwork — bank statements, pay stubs, birth certificates, IDs, Social Security cards — can take hours, sometimes days. And that's just the start.

"A lot of community members don't have access to emails, or they forget their login or they lose their phones," said Hayes. "At this point, we're creating emails for everybody just so that we (staff) can personally check them."

Even then, things can go wrong. In September, Davis won a Section 8 voucher through a city-wide lottery but didn't complete the forms quickly enough. Fortunately, Hayes had already helped him fill out a 30-page application for DHA housing. In January, he had an appointment to sign paperwork but missed it to attend a funeral.

"There's so many things that feel like they have to go so perfectly in order for it to work out," said Hayes.

Even if they fill out all the forms and make every appointment, Indigenous people still face discrimination from landlords. In Montana, Minnesota and New Mexico, white applicants have almost a 30% better chance of getting an apartment than Indigenous folks.

Last May, one former SOS resident — Daniel Pretty

Melanie, her partner, Thomas, and their two bunnies, "the Pawz family," in a common room *(top)* at Chief Seattle Club *(above)*. Derrick Belgarde, executive director of the Chief Seattle Club, on a building patio *(left)*.
Evan Benally Atwood / HCN

Sounding Flute II, 52, from the Lower Brule Sioux Tribe in South Dakota — got a DHA rent subsidy voucher with the help of SOS staff. He was excited about getting his own place, but also nervous.

"If they know you're from the rez, you're treated like a dog," he said.

Initially, he looked at three places. At one, he was accepted but then informed of an additional $400 application fee. At the second, he was quizzed about his income — even though the voucher would cover most of his rent. It seemed designed to discourage tenants like him.

Philip Garboden, associate professor at the University of Chicago, said that landlords sometimes discriminate in

subtle ways. "It's not like they go into it saying, 'I don't want to rent to a particular race,'" he says. "But behaviors, credit scores, job histories are interpreted fairly differently based on your racial profile."

By July, Pretty Sounding Flute found a two-bedroom apartment, and Ziegler (who went to high school with him in South Dakota) helped him move.

"This is why I do the work I do," Ziegler said. "I don't want to see my people suffering like this."

THREE YEARS AFTER NAYA opened its Generations building, the organization tried a new approach. It opened Nesika Illahee ("Our Place" in the Chinook language) in Portland in 2020 in partnership with the Siletz Tribe, which had allocated its HUD Indian Housing Block Grant toward the project. Such grants are traditionally used by tribal housing authorities; Nesika Illahee was the first to use one in an off-reservation setting, allowing it to reserve 20 of its 59 units for Siletz tribal members and those of other federally recognized tribes.

"That was a really big game changer in terms of being able to bring tribal members to the top" of the waitlist, NAYA told *Street Roots*.

United Indians of All Tribes Foundation found a similar workaround. After King County's new vulnerability assessment system filled its Seattle shelter with non-Indigenous youth in 2013, the foundation asked the county to include another question: Would clients prefer a provider specialized in serving those with a tribal designation? Indigenous youth overwhelmingly said yes, and Labateyah resumed serving the people it was built for.

Similarly, Seattle's Chief Seattle Club used "community preference" to prioritize applicants from the surrounding area, where many Indigenous folks lived, and now 93% of the 80 units in its ʔálʔal building, are occupied by Indigenous folks.

Such preferences aren't racial classifications, so they're perfectly legal. When combined with other indicators — educational attainment, income, home value, utilization of social services, and free and reduced lunch status for children — they effectively serve as proxies for race. But compiling such indices requires statistical sophistication, knowledge of data sources — and time.

"It's just a lot of blood, sweat and tears," confirms Derrick Belgarde, Siletz and Chippewa-Cree, executive director of Chief Seattle Club. He doesn't understand why providers can prioritize applicants by age, disability, military service, HIV and immigration status — but not race.

"There's certain populations where it makes sense ... to provide specifically for them," he says. "What the data shows is that you should be able to do that with Native Americans as well."

MELANIE HUNT, WHO is Yakama and Spokane, was one of ʔálʔal's earliest residents when it opened in 2022. Though she lived rough for many of her 51 years — running away from home at 12 and sleeping on Seattle's streets for most of the intervening time — her demeanor is cheerful and her skin smooth. In her studio apartment, Hunt hangs out with her partner, Thomas, their two bunnies and dog, Bubba, whom she calls "Bubbalicious." They often walk to the nearby public market.

"Now when we go out, we can say we have a place to go back to and not be worried about is our tent still there," says Hunt. "It feels good to come home now."

In summer, Hunt and her partner grow tomatoes and carrots on the rooftop community garden. They take classes in drum and rattle-making, help with community cleanups and attend birthday parties for their neighbors' dogs. They've made good friends at ʔálʔal, especially with elders. "They always call us 'the kids,'" she says, smiling at the thought of being a "kid" at 51.

But not all the stories end happily. Though a "Housing First" approach that offers housing without preconditions is generally more successful than one that requires sobriety or addiction treatment beforehand, substance abuse or mental illness can persist even after a person has a place to live. ʔálʔal staff say residents sometimes abandon their apartments, either because they don't want to pay rent, or because they simply can't get used to the quiet, and to staying inside.

Back in Denver, Pretty Sounding Flute loves his new apartment, but not its silence. He tries to fill it by reading *Dungeons & Dragons* or cooking — steaks, potato soup. He also returns to the SOS site several times a week, sometimes riding his bike an hour and a half each way, driven by something stronger than comfort or reason: the chance to see friends, grab a meal, hang out.

"It's good for my heart," he said. But eventually, the time always came to say goodbye, to catch three different buses, and to return to his too-quiet home.

Daniel Pretty Sounding Flute II makes art and listens to music at his Denver apartment, which is decorated with his art and other items to remind him of home. **Eli Imadali / HCN**

FACTS & FIGURES

Highways of hazard

America's car culture kills people and wrecks communities.

BY JONATHAN THOMPSON
ILLUSTRATION BY HANNAH AGOSTA

ON JULY 29 LAST YEAR, 17-year-old Magnus White left his Boulder, Colorado, home for a final training ride before competing in the UCI World Cycling Championships in Ireland. As he pedaled back to town in the shoulder lane of the Diagonal Highway, a major thoroughfare, 23-year-old Yeva Smilianska swerved out of her lane onto the shoulder. Her Toyota Matrix slammed into White, throwing him into a fence and killing him.

White was just one of the 6,800 motorists, passengers, bicyclists and pedestrians killed on the roads, highways and streets of the Western U.S. during the first nine months of 2023 alone. In the U.S., this region's per capita death rate is rivaled only by that of the Deep South.

Every fatal crash has its own cause, whether it's careless or distracted driving, high speeds, adverse conditions or any of a myriad other factors. But the regional trends — especially an alarming rise in pedestrian fatalities — have deeper roots: highways designed to move cars quickly, rather than safely; a hunger for larger and larger vehicles; growing wealth inequality (and infrastructure disparities); and, most fundamentally, Americans' car-centric culture, whose public policies and infrastructure value automobiles over humans at almost every turn.

SOURCES: National Highway Traffic Safety Administration; Environmental Protection Agency; Governors Highway Safety Association; Edmunds; Ford Motor Co.; Fuelly; "The 'Arms Race' on American roads: The effect of sport utility vehicles and pickup trucks on traffic safety," by M.J. White; "The effect of front-end vehicle height on pedestrian death risk," by Justin Tyndall; "Race and income disparities in pedestrian injuries: Factors influencing pedestrian safety inequity," by J. Roll and N. McNeil; Los Angeles Times; Smart Growth America; Insurance Institute for Highway Safety.

	IDAHO	WYOMING	ALASKA
Percentage of fatalities in **NON-RURAL** and **RURAL** areas:			
Annual miles driven per capita; % of fatalities that are speeding related; % of fatalities when driver had blood alcohol content over .01%:	10,157; 31%; 33%	19,172; 41%; 38%	7,851; 40%; 39%
2021 fatality rate per 100,000 licensed drivers, and how many deaths involved **pedestrians**:			
Percentage of total private and commercial vehicles that are trucks (pickups and SUVs) and the most popular new car of 2022:	69%; Ford F-Series	76%; Ram 1500/ 2500/3500	75%; Ram 1500

18.5%; 11.2%; 5.5%
Percent of drivers involved in fatal crashes in the U.S. in 2021 that were, respectively: driving too fast for conditions; under the influence of alcohol, drugs or medication; or driving while distracted.

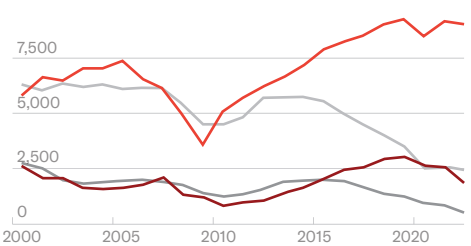
Big car arms race: As motorists demand larger vehicles, auto manufacturers heed the call. The weight of the average car on U.S. roads has ballooned by 34% since 1980, with height and width also increasing. While bigger cars typically are safer for their occupants, they pose a greater hazard to anyone or anything smaller they may collide with, a phenomenon known as "crash incompatibility." A 2004 study found that for every life saved by a motorist who switched from a car to a light truck (SUV or pickup), **4.3 other drivers, pedestrians and cyclists were killed.**

28%: Percent by which a collision with an SUV is more likely to kill a car's occupants than one with another passenger car.

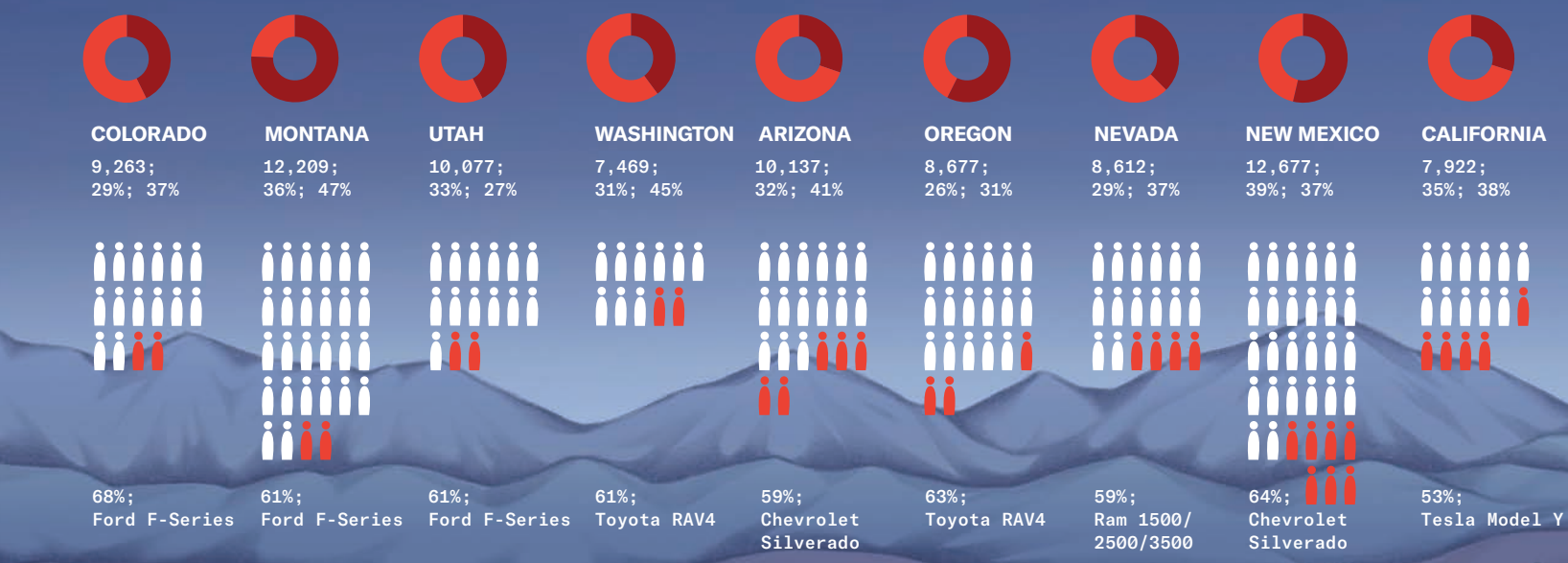
Ford F-150:
America's most popular new or used vehicle.

	Ford F-150 2023	Ford F-150 1948-1950
Width	80"	73"
Height	75"	75.6"
Front-end height	57"	~ 53"
Weight	4,122 lbs	3,150 lbs
MPG	21 mpg	~ 10 mpg

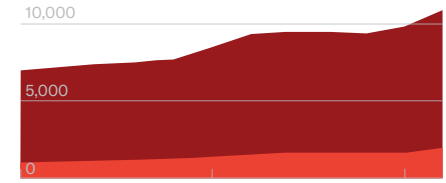
New car sales and car leases, truck sales and truck leases in the U.S. 2000-2022



*Light trucks include most SUVs, pickup trucks, vans and minivans.



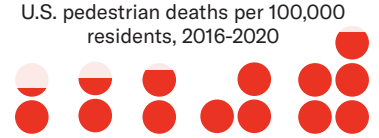
Highway and **highway pedestrian** fatalities in Western states



Growing risks: While traffic deaths have been increasing nationwide alongside population growth, the West's highways appear to be getting even deadlier over time, especially for pedestrians.

The inequity of highway hazards: Traffic crashes kill people of color and those with lower incomes at a disproportionately high rate. Indigenous people are twice as likely as white people to die on American highways, and the risk is even higher for people who are walking. Many drivers cannot afford larger cars that are safer for their occupants, leaving them at the mercy of ever larger and more costly SUVs. At the same time, low-income neighborhoods are less likely to have sidewalks, adequate street lighting or traffic-calming devices, making pedestrians more vulnerable. A 2019 study found that for **every $1,000 decrease in the median income of a U.S. census tract,** pedestrians are **1% more likely** to be killed by a motorist.

U.S. pedestrian deaths per 100,000 residents, 2016-2020



90 days
Jail sentence for the motorist who struck and killed Christine Embree, who was riding her bike with her 16-month-old daughter in Southern California, in August 2022.

A 2008 study found that an SUV traveling at 24 mph would have **twice the impact force** on a pedestrian's brain as a sedan traveling the same speed.

A 2004 study found that pedestrians hit by a light truck rather than a car are **two to three times more likely to die**.

58%
Percent of transportation-related greenhouse gas emissions in the U.S. attributable to light-duty vehicles, including passenger cars, pickups and SUVs — about 14 times more than aircraft produce.

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Want to tell us why you support *HCN*?
Email us at: **fundraising@hcn.org**

A new digital us

I'm delighted to be able to inform you that *High Country News* has finally flipped the switch on a whole new digital us — the culmination of more than a year's worth of work spent documenting, consolidating, parsing, building, and migrating from antiquated technology to a suite of modern platforms that, well … do exactly what we've been pretending to do all along.

You see, *HCN* had this habit of plugging any gaping digital holes with live humans. (This is technically legal in all Western states, but not necessarily efficient or remotely easy on the humans involved.)

Picture it: You went to our website and signed up for a subscription, trusting that some digital whirligigs in the background would instantly whisk your information into a big data closet and present you with the keys to your fancy new account. Wrong! Instead, every morning, a person — let's call them, say, "Tammy" or "KHowe" — had to download a spreadsheet for everyone who tried to subscribe the day before, going through every single cell, fixing and tweaking, until at last they could upload it into our subscription software. There was no magic pipeline from website to database, just hard-working humans laboring to ferry your subscriptions across the breach.

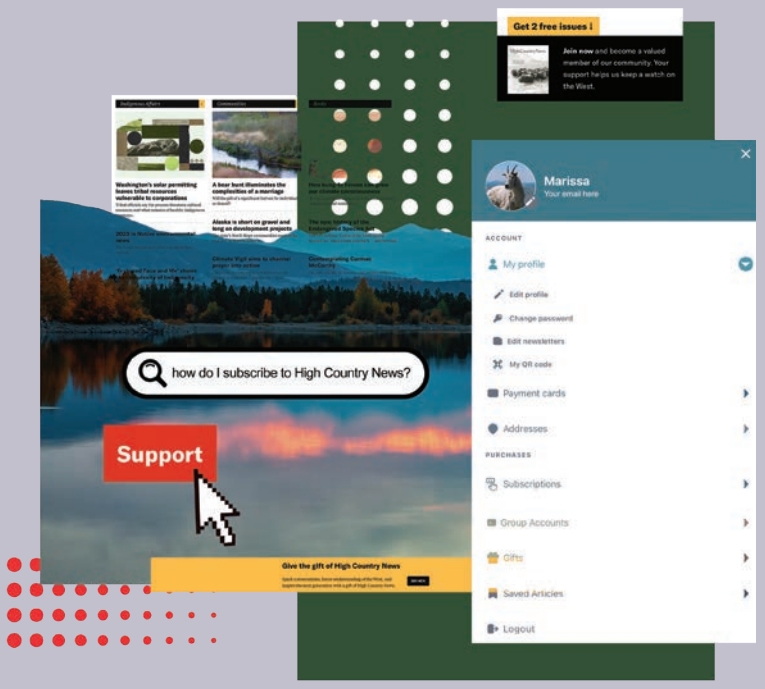


Photo illustration **Marissa Garcia/HCN**

This pay-no-attention-to-the-wizard-behind-the-curtain charade was repeated for almost anything you can think of involving your relationship with *HCN*.

But no longer! On Feb. 6, we switched over to all-new systems.

The upshot for you is that it should be significantly easier to deal with anything related to *High Country News*. (The upshot for us is that it will make life a whole lot easier for our invaluable customer service folks.) Meanwhile, we can do something we've wanted to do for ages: Offer you a subscription that renews automatically, no flood of renewal notices required.

Update your address? Easy. Pause your magazine delivery while you're out of town? Click a button. Save your payment information? No problem. View subscription details and renew whenever it's convenient? Absolutely. Now, you can go directly to your new account dashboard. Giving gift subscriptions or making recurring donations have also become much easier. Learn how to log in, etc., at **hcn.org/tutorials**.

I hope you're all as excited by this upgrade as Tammy and KHowe are!

Best of all, there will still be live human beings here in Paonia available to pick up the phone and answer any questions you have. Feel free to call us at 970-527-4898, Monday through Thursday, between 9 a.m. and 4:30 p.m. MT — even if it's just to congratulate our wonderful staff.

Michael Schrantz, marketing communications manager

New fellows

Two new editorial fellows joined *High Country News* in January.

Erin X. Wong, who graduated from Columbia University Graduate School of Journalism in May 2022, will be reporting from the San Francisco Bay Area. They were most recently an environmental justice fellow with The Uproot Project, a network for journalists of color who cover environmental issues.

Former *HCN* editorial intern **Natalia Mesa** is staying on as a fellow. Natalia, who holds a Ph.D. in neuroscience from the University of Washington, has worked as a freelance journalist and correspondent for *The Scientist, Hakai, Scientific American* and others. She is based in Seattle.

We're thrilled to have both of them for the next year!

Faces like Mirrors

Lesbians who showed the way.

Photos by Morgan Lieberman | Text by Emily Withnall

I GREW UP IN a small Catholic town in northern New Mexico. If I created a documentary about teenage lesbian life there in the 1990s, no one would appear in it — not even me. A photo shows me towering over the two friends I went to my junior prom with; one of them happened to be one of the two openly gay boys at my school.

In 2003, New Mexico named the whiptail lizard its state reptile. All whiptails are female, so they've been nicknamed the "lesbian lizard." If threatened by a predator, a whiptail can detach her tail, leave it writhing on the ground, and dart to safety. But human lesbians have no such superpower. Once you're identified in a small town, there's nowhere you can go. I knew of older lesbians in town, but I

CATHY AND SANDIE
ALBUQUERQUE, NEW MEXICO ▶

CATHY: She's taught me to take risks. I mean, I would say that we are very complementary in a lot of ways, and we've managed to overcome a lot in our years together. And during that time, we couldn't have done it without teaching and learning from each other.

wondered why there were none my age. Perhaps the older ones could live there because the creeping invisibility women often experience as they age freed them in some way.

Morgan Lieberman created her photographic series *Hidden Once, Hidden Twice* to make women like the ones surrounding me visible. Lieberman's project focuses on lesbian women over 62 who are in loving long-term partnerships. When she was growing up, she said, she never encountered queer women. This series is a way to honor and recognize the women who created an opening we could step into.

At age 7, I sometimes slept over at my friend Angelica's house. Angelica had two moms. I have no memory of surprise or curiosity at this fact, only a memory of one of them pulling too hard when she brushed my hair.

A photo of Claire Fulenwider and Harriet Forman on the front page of the Santa Fe New Mexican on April 5, 2004, one day after they were the first same-sex couple to be married in their Jewish synagogue.

Given the size of my small hometown, older lesbians seemed to be everywhere: the woman who owned the construction company and her partner, the masseuse; the doctor couple and the bookstore owners; the writer and her horse-therapist partner; the woman who worked at the tiny health food store; the farming couple with the best green chile at the Tri-County Farmers' Market.

There were plenty of women I could model myself on, and yet, it took me longer than most to see myself in their faces. The doctors watched me grow up, endure a short, terrible marriage, learn to be a single parent, and finally, at age 28, come out. The writer taught me creative writing in ninth grade and speech in college, and later listened patiently as I rattled off my confused thoughts and questions about my sexuality and my fears that my kids could be taken from me. She and her partner have since become my good friends.

Cottonwood tree, red earth mesa, turquoise jewelry, adobe wall — I know who these New Mexican couples are. Their faces remind me of home, too. It's good to be back; I lived eight long years in Montana, where I avoided holding my girlfriend's hand in public for fear of being attacked.

I can't quite describe the ache I feel as I study the faces of the women in Lieberman's photographs. Though I don't know them, and they live in many places across the West, they seem familiar to me now. I feel their gazes on me. I feel a kinship with them and gratitude for the battles they fought that allow me and my nonbinary kid to be freer. I'm also envious, because they experienced a deeper kind of community, complete with lesbian bars and secret codes, that seems to have faded away. I wonder, too, if there will be someone sharing the frame with me when I reach their ages. When my kids were little, I hoped — I *willed* — unsuccessfully that each woman I dated would become another parent figure to my children. If Angelica could have two moms in rural New Mexico in the 1980s, surely my own kids could have two moms in 2012.

As I study the faces of these women who have lived more life than I have, I want to know what they know. In my yearning for lesbian community, I conjure up potlucks, exes dating exes, leftist political action and the persistent soundtrack of the Indigo Girls. When I was 14, I traveled an hour from my hometown to see the Indigo Girls perform at the Paolo Soleri Amphitheater in Santa Fe. It was my first concert. A thunderstorm hit as Amy and Emily began to play, but the crowd of lesbians stood in the pounding rain singing, their hair and clothing flattened against their bodies, until the concert ended. I was exhilarated for reasons I was not able to name until I came out 14 years later.

As I remember my teens and early 20s, I recall that the older lesbians in my hometown took on almost a mythic quality to me, as if they had somehow found a way out of societal constraints that was not available to me. I remember wishing that I was lesbian, too, as if it was almost too hard to imagine that I already was.

My first year back in New Mexico, I walked to the Santa Fe Plaza to watch the pride parade with my teen. One retirement home bus after another rolled slowly by. Gay and lesbian seniors waved rainbow flags from the bus windows and smiled at us — two younger generations, following in their giant footsteps. We smiled back from the sidewalk.

▲ **GEVIN AND CATHY**
VAN NUYS, CALIFORNIA

GEVIN: Well, we were homeless for two years when we first got together; when we first started dating, we had both come out of very, very tumultuous relationships. And so we ended up finding each other through all of that ridiculousness. And neither of us had anywhere to go. I mean, every night we would see the sunset on the ocean. We lived in my van together for two years. We were like two peas in a pod anyway.

▼ **BEV AND LISA**
PHOENIX, ARIZONA

LISA: Bev and I share core values in ways that I think make our relationship able to last.

BEV: Who takes out the garbage? Who takes care of the yard? Who takes care of the house? Who does this? Who does that? I mean, that's the simple stuff.

▼ **MAGGIE AND KRISTEN**
SALT LAKE CITY, UTAH

KRISTEN: I was in private practice taking care of the AIDS patients, and no one would help me. So I was working 24/7 and it was too much.

So she went to PA school and joined me, and then we worked together 24/7. That's how we got together.

MAGGIE: Often you read about people that work together that have relationships together. They don't stay together, or you read about when you retire that your relationship dissolves. But ours didn't. We just kind of transferred some of that to different things. We like birding, we do. She loves birds. I love to drive. So we say, oh, let's go see that bird somewhere else. Oh, I'm going to drive you there.

▲ **BILLIE AND GAY**
SANTA FE, NEW MEXICO

BILLIE: It was a wonderful time, when we got together. She had the most innocent broad smile I'd ever seen in my life. A real joy, a joyous look about her. It still blows my mind.

▲ **CLAIRE AND HARRIET**
SANTA FE, NEW MEXICO

HARRIET: The morning of February 20th, 2004, Claire went to work as usual and heard on the ...

CLAIRE: ... radio on NPR that in Sandoval County, New Mexico, the clerk of courts is issuing same-sex licenses that day. So I called her up and I said, "Honey, what are you doing for lunch? Want to get married?"

▼ **JEWELLE AND DIANE**
OAKLAND, CALIFORNIA

JEWELLE: She's provided for me a sense of unconditional support for whatever I'm doing.

DIANE: When we first got together, I had never felt so full or complete and couldn't imagine that there could be even more than that. And every day there is still more than that.

▲ **HOODIE AND KATHY BICKNELL, UTAH**

HOODIE: It was after we had met at the campout. I saw this little yellow Toyota driving next to me. And I just thought, you know what? She should be in this car with me, or I should be in that car with her. I just really liked her man. But it's, man, 34 years. It blows me away.

▼ **KATE AND TISH SANTA CRUZ, CALIFORNIA**

TISH: We met at the Santa Cruz Beach Boardwalk. I saw Kate walk by with who I thought was her partner. And I was just like, "You're like, oh, there's some other lesbians." And I just was checking them out and they were checking me out and they were smiling. I was sort of smiling to myself.

KATE: For me, it was love at first sight, that smile.

DINAH AND SALLY
SANTA CRUZ, CALIFORNIA

DINAH: I want Sally to quit saying she's only going to be around five more years. If that's true, which I know it's not, but if that's true, we're going to enjoy every single one of those days.

SALLY: We share a lot. We have a lot in common, and it's good. Yeah, it's better than good.

Morgan Lieberman's photographs were supported by a 2023 *High Country News* Western Communities photo essay grant, and are part of her ongoing project documenting older lesbian partnerships around the country. To hear more from Morgan's interviews with the couples, please visit: hcn.org/model-women

Regeneration Un

The seeds we need to power ecological restoration may already be present, hiding

By Josephine Woolington | Illustrations by Alex Boersma

IN 2000, Sam Lea converted his once-productive Willamette Valley onion field back into wetlands. The third-generation Oregon farmer excavated several ponds and largely left the land alone. Soon, willows arrived on the wind. Then tule appeared. About five years ago, he noticed wapato had sprouted. The edible tuber, a traditional food for Pacific Northwest Indigenous peoples, is now flourishing. The greenery covers 70 acres. "If you look at it now, you'd think we planted it all," Lea said.

Wapato was once abundant but hasn't grown here since the early 1900s, when Lake Labish, a shallow body of water 10 miles long and north of Salem, was drained for farming. Historic accounts describe Molalla people gathering tubers in the area. "There's a significant seed bank in the soil," said David G. Lewis (Confederated Tribes of Grand Ronde), an Oregon State University anthropology and Indigenous studies assistant professor who descends from western Oregon's Takelma, Chinook, Molalla and Santiam Kalapuya peoples. "If you leave it alone, (plants) will come back."

At Lake Labish, cattails, tule, willows and wapato grew over thousands of years. Farmers erased evidence of the lake above ground, but belowground, decomposed vegetation that extends some 19 feet back in time preserved seeds and roots, retaining both ecological memory and a possible future.

Lea assumed that swans or geese spread the wapato seeds. But water collected in the ponds he made could have reawakened long-buried tubers, souvenirs of plants that lived before the lake was drained. At other Northwestern agricultural sites, native plants have also returned, unseeded, once crops or invasive plants were removed. In an era of ecological dread, endless development and rising global temperatures, it's hard to believe that plants could endure, and even regrow.

Many plants store future generations just a few inches belowground in seed banks, where seeds, roots, buds and bulbs remain dormant. Some seeds can survive for decades — even centuries, or longer. Seed banks are "biodiversity reservoirs," as one recent study described and are found in ecosystems globally. Across the West, they're present from wetlands to deserts, sand dunes and sagebrush steppes. The plants wait until conditions are just right to reappear.

To Native scientists like Lewis, they offer a new possibility, that despite generations of degradation, some landscapes can come back. Northwest plants evolved unique seed structures, hardy root systems, long-living bulbs and complex dormancy periods to survive in landscapes that faced regular disturbance by everything from volcanic eruptions to flooding, drought, fire and colonialism. Yet non-Native scientists often overlook their ability to regrow — natural regeneration. It's a tool in restoration ecology that is both understudied and written off even though it's cheaper — and better — at creating resilient biodiverse landscapes.

"A large part of the urge to plant is this feeling, like, 'We broke it. We need to fix it,'" said Robin Chazdon, a senior fellow at the nonprofit research organization World Resources Institute. Chazdon, who is based in Boulder, Colorado, co-authored a 2017 policy brief that urged ecologists and others to consider natural regeneration. For 30 years, she has studied forests in Mexico, Costa Rica and Brazil. Tropical forests, including mangroves, can regrow better on their own, without any plantings, her research found. "We don't want to work against nature," she said. "We want to work with nature. And nature's figured out over these billions of years how to recover."

Experts say restoration can be one-size-fits-all: Kill the weeds, then plant native seeds. But it's hard to get seeds to grow and some might not be genetically adapted to the site. Collecting and planting native seeds is the foundation of the Department of the Interior's new National Seed Strategy Keystone Initiative, which Secretary Deb Haaland (Pueblo of Laguna) said will "help ensure we get the right seeds, in the right place, at the right time to restore our public lands and bolster climate resilience."

Many non-Native scientists question whether restoration isn't possible without planting because seed banks are either depleted or can't replenish damaged landscapes fast enough. There's an urgency, they say, given the climate and extinction crisis. If native plants return quickly, pollinators,

derground

just below the surface.

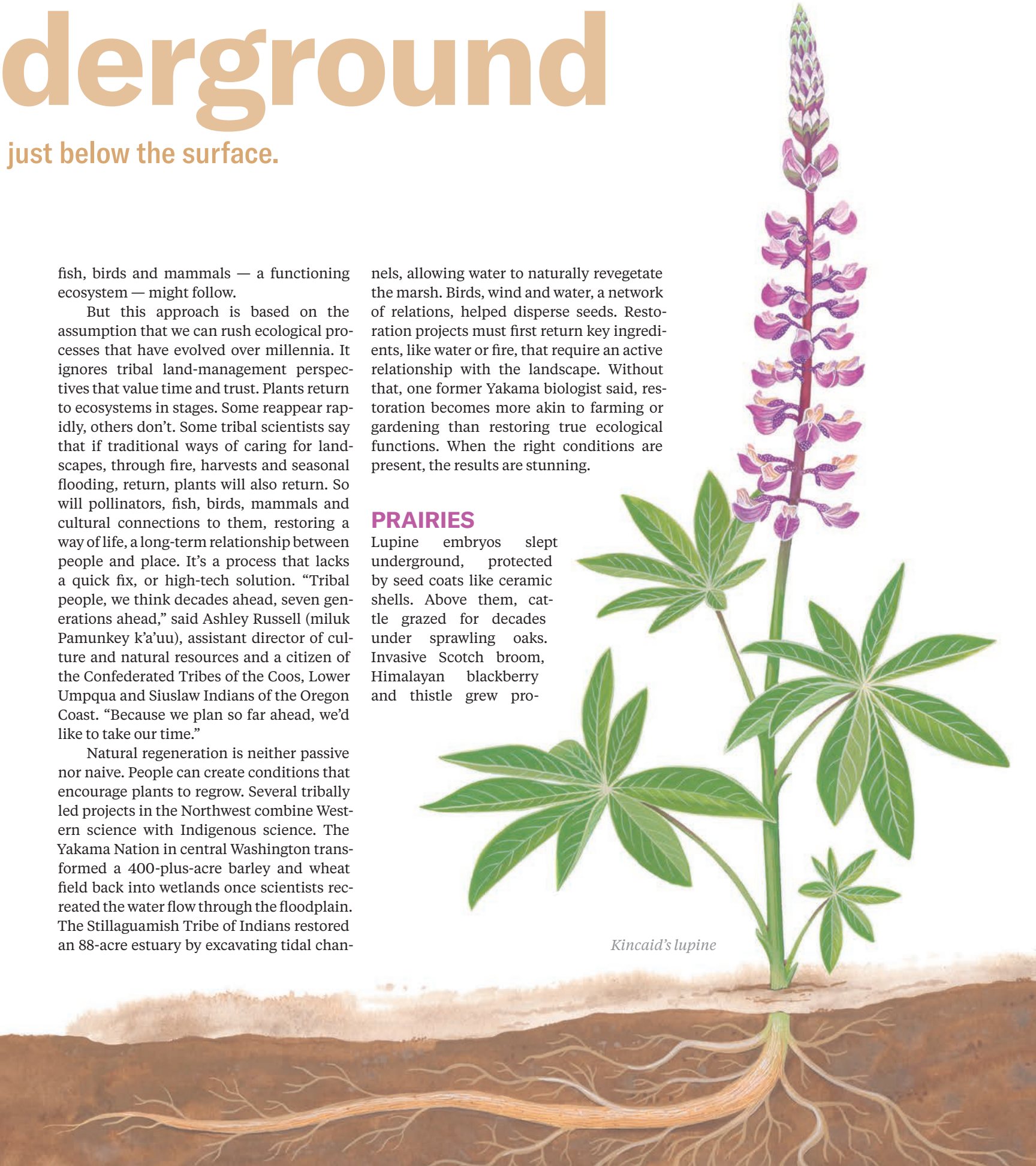
fish, birds and mammals — a functioning ecosystem — might follow.

But this approach is based on the assumption that we can rush ecological processes that have evolved over millennia. It ignores tribal land-management perspectives that value time and trust. Plants return to ecosystems in stages. Some reappear rapidly, others don't. Some tribal scientists say that if traditional ways of caring for landscapes, through fire, harvests and seasonal flooding, return, plants will also return. So will pollinators, fish, birds, mammals and cultural connections to them, restoring a way of life, a long-term relationship between people and place. It's a process that lacks a quick fix, or high-tech solution. "Tribal people, we think decades ahead, seven generations ahead," said Ashley Russell (miluk Pamunkey k'a'uu), assistant director of culture and natural resources and a citizen of the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians of the Oregon Coast. "Because we plan so far ahead, we'd like to take our time."

Natural regeneration is neither passive nor naive. People can create conditions that encourage plants to regrow. Several tribally led projects in the Northwest combine Western science with Indigenous science. The Yakama Nation in central Washington transformed a 400-plus-acre barley and wheat field back into wetlands once scientists recreated the water flow through the floodplain. The Stillaguamish Tribe of Indians restored an 88-acre estuary by excavating tidal channels, allowing water to naturally revegetate the marsh. Birds, wind and water, a network of relations, helped disperse seeds. Restoration projects must first return key ingredients, like water or fire, that require an active relationship with the landscape. Without that, one former Yakama biologist said, restoration becomes more akin to farming or gardening than restoring true ecological functions. When the right conditions are present, the results are stunning.

PRAIRIES

Lupine embryos slept underground, protected by seed coats like ceramic shells. Above them, cattle grazed for decades under sprawling oaks. Invasive Scotch broom, Himalayan blackberry and thistle grew pro-



Kincaid's lupine

"There is value to pausing and seeing how sites respond, letting the

fusely in this western Oregon pasture.

A few years ago, the lupines woke up. Sunlight warmed the soil. Rain seeped down, just a few inches, to a tiny pore at the top of each seed. Weeks later, teardrop-shaped lavender petals bloomed in the April sun. The plants may be Kincaid's lupine, a Willamette Valley prairie species that was once abundant in the open oak grasslands bordered by the Cascades to the east, and the Coast Range to the west. Since 2000, Kincaid's lupines have been listed as threatened under the federal Endangered Species Act.

This 60-acre pasture lies within the ceded lands of the Confederated Tribes of Grand Ronde. When the tribe reacquired it in 2019, Lindsay McClary, the tribe's restoration ecologist, noticed that a few lupines appeared once Scotch broom was removed. Both lupines and Scotch broom belong to the pea family, and their hardy seeds can persist underground for decades — up to 80 years for Scotch broom. No one knows just how long native lupine seeds can survive.

McClary approaches sites slowly. She observes properties carefully before she sows anything. Dry prairies in the Willamette Valley are challenging. Invasive species, especially grasses, have choked out natives for decades; thick brown thatch covers the ground. Non-Native ecologists believe invasive seeds outnumber natives in the seed bank, but no studies have confirmed it.

After removing invasive species, McClary often plants seed from locally sourced native bunch grasses, like Roemer's fescue, to crowd out any returning invasives. Then, she'll wait and see if any native flowers appear. She hasn't seeded anything at this property, yet the lupines have spread to around 25 individuals now. "There is value to pausing and seeing how sites respond, letting the landscape talk to you and not try to force something," McClary, an enrolled member of the Sault Ste. Marie Tribe of Chippewa Indians of the Great Lakes Basin, said.

"Maybe the seed bank is there, and maybe it can take care of itself, and it just needs a little bit of time."

AT OTHER GRAND RONDE properties, Oregon iris emerged in a former horse pasture. Oregon sunshine, strawberry and several species of checkermallow also sprang from the seed bank once invasive species were removed. Camas, a traditional food with star-shaped indigo flowers, has regrown throughout the valley. On one site west of Portland owned by Linfield University, the wildflowers covered half an acre after blackberry was cleared. Camas evolved with annual harvests and fires by Kalapuyan families, who lived in the Willamette Valley. If the edible bulbs aren't harvested frequently, or if nonnative grasses crowd them out, they'll withdraw deep into the ground, sometimes by an arm's length, in search of water. The bulbs can live for decades. As soon as favorable growing conditions return, they send new shoots up through the soil.

Some Grand Ronde tribal members were not surprised.

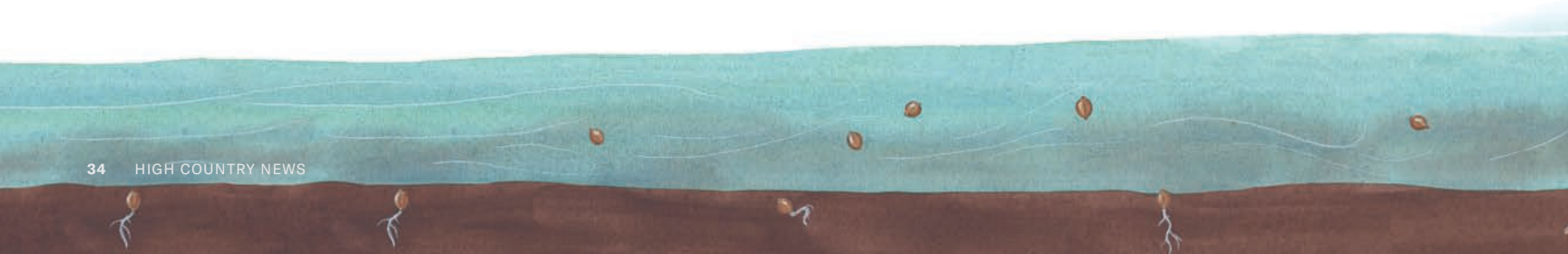
"They're kind of sitting there, waiting for those opportunities," said Greg Archuleta, a tribal member who works for the tribe's cultural resources department. A few years ago, he said, a small fire burned a landscaped patch off I-205 that runs through east Portland. Afterward, several native plants that weren't there previously, including black raspberry, sprouted. Archuleta visited a few privately owned properties in the Kings Valley area north of Corvallis, where native plants appeared on their own, once landowners thinned the oak understory.

After white settlers arrived in the mid-1800s, the Willamette Valley's rich prairies and wetlands became farms, cities, shopping centers and vineyards. Despite broken treaties and exploitation, native seeds and bulbs survived underneath onion fields and pastures. This reassures Archuleta. Other tribal elders also trust that native seeds wait underground and can return.

Still, many non-Native ecologists overall consider natural regeneration more of an ecological fantasy than a successful approach to restoration. "There are these interesting exceptions that tantalize us," said Tom Kaye, an ecologist and executive director for the Institute for Applied Ecology, a Corvallis-based restoration nonprofit. But typically, only a handful of plants return, and he wants a million. "If we don't plant native seeds," he said, "we don't get native plants."

Such philosophical differences play out in different restoration strategies. Nontribal projects operate on short timelines. Public grants for restoration typically fund three to five years of work but often lack money for long-term monitoring. Grantees want certainty, a guarantee that so many acres will be seeded with native plants, so ecologists often turn to herbicides, then sow native seeds. It's cheap and quick, but the projects tend to be cookie-cutter, a step-by-step recipe for undoing colonization on the landscape.

The Institute for Applied Ecology eradicates nearly everything using glyphosate-based or grass-specific herbicides like those found in Rodeo, Gly Star and Roundup. Over a two-year period, they spray multiple times a year, including in the spring. That keeps invasive plants from producing seed, but also kills any remaining native plants. Then



landscape talk to you and not try to force something,"

workers plant locally sourced native seeds, at a cost of $333 to $826 per acre. Sometimes about half of them don't germinate, Kaye said. Weather, soil chemistry and the amount of weeds in the seed bank all complicate the effort.

A few years ago, the Institute tried a different approach. Tall nonnative grasses dominated a seven-acre site east of Salem, though some native plants persisted. Workers applied glyphosate twice, in December 2021 and fall of 2022, when nonnative grasses germinate while native flowers are still dormant. The past two springs, delicate white flowers of native saxifrage covered the meadow. A few months later, native yellow monkeyflower brightened all seven acres. The plants weren't seeded.

At sites owned by the Grand Ronde, McClary initially removes large swaths of invasives in the fall using chainsaws, masticators or mowers instead of herbicides. Like many tribal ecologists, she develops an intimacy with the properties. When restoration of a landscape means bringing back not just plants, but the interaction between people and plants, the work becomes something more than grant timelines and budgets can consider.

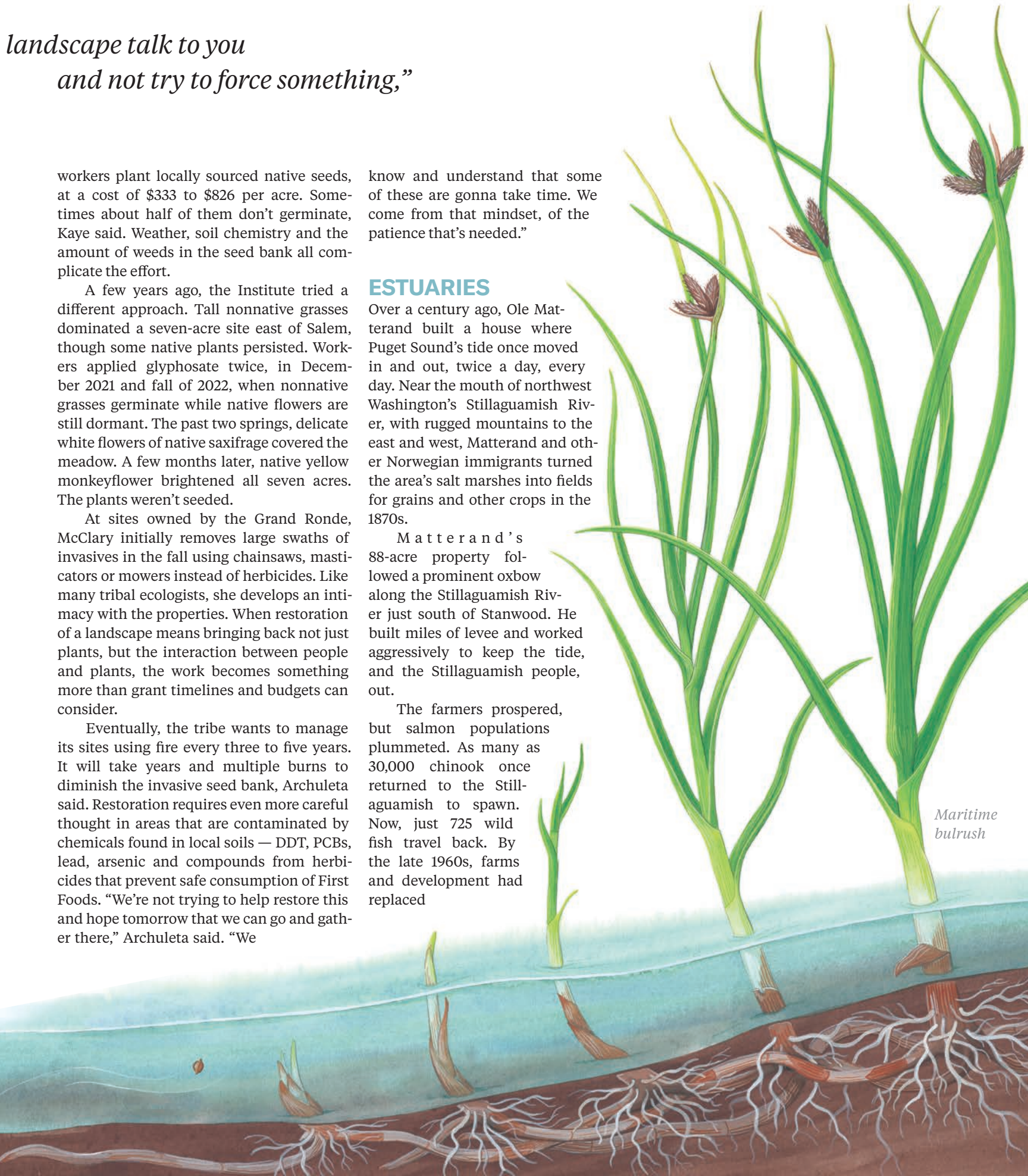
Eventually, the tribe wants to manage its sites using fire every three to five years. It will take years and multiple burns to diminish the invasive seed bank, Archuleta said. Restoration requires even more careful thought in areas that are contaminated by chemicals found in local soils — DDT, PCBs, lead, arsenic and compounds from herbicides that prevent safe consumption of First Foods. "We're not trying to help restore this and hope tomorrow that we can go and gather there," Archuleta said. "We know and understand that some of these are gonna take time. We come from that mindset, of the patience that's needed."

ESTUARIES

Over a century ago, Ole Matterand built a house where Puget Sound's tide once moved in and out, twice a day, every day. Near the mouth of northwest Washington's Stillaguamish River, with rugged mountains to the east and west, Matterand and other Norwegian immigrants turned the area's salt marshes into fields for grains and other crops in the 1870s.

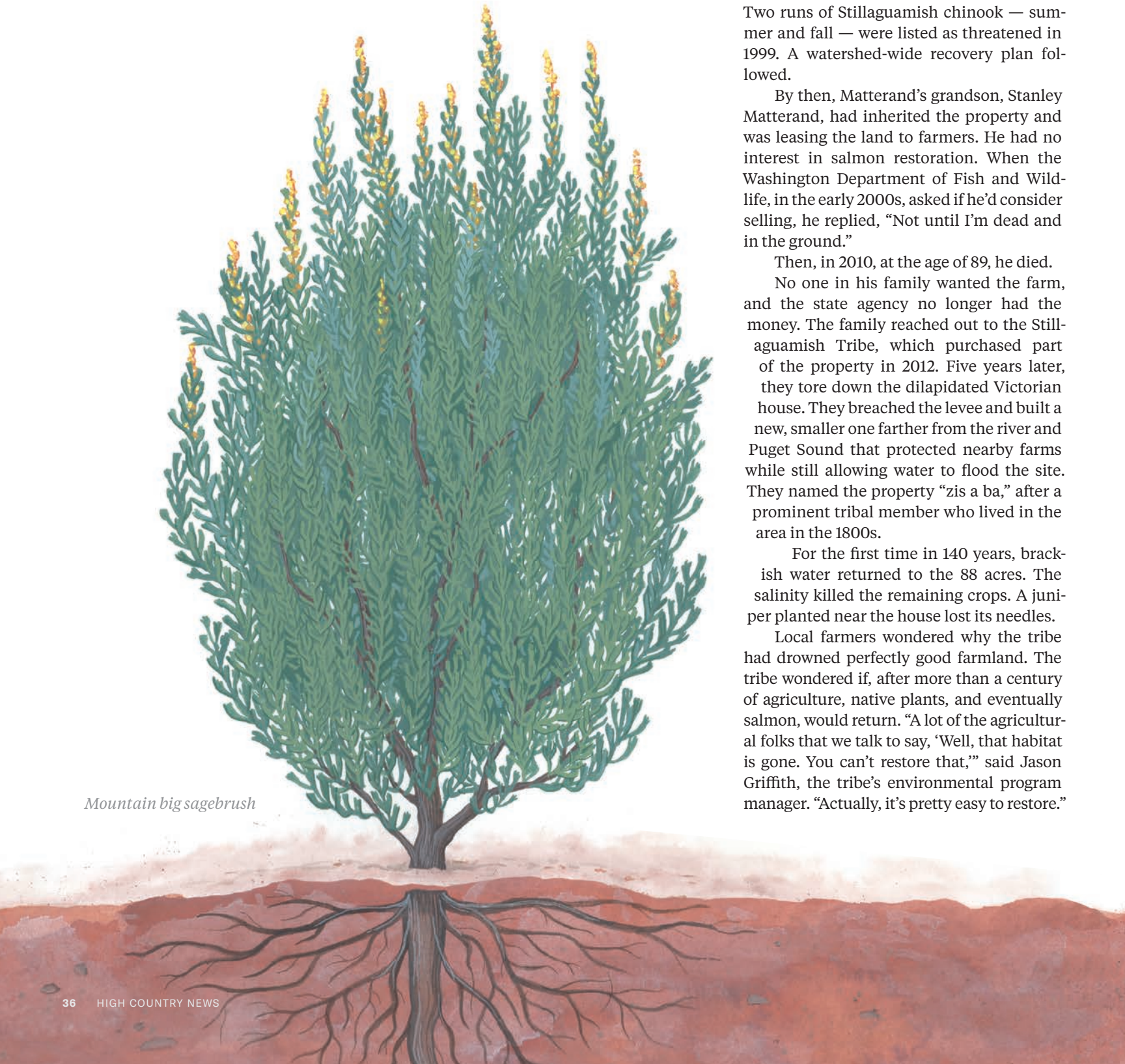
Matterand's 88-acre property followed a prominent oxbow along the Stillaguamish River just south of Stanwood. He built miles of levee and worked aggressively to keep the tide, and the Stillaguamish people, out.

The farmers prospered, but salmon populations plummeted. As many as 30,000 chinook once returned to the Stillaguamish to spawn. Now, just 725 wild fish travel back. By the late 1960s, farms and development had replaced



Maritime bulrush

Local farmers wondered why the tribe had
after more than a



Mountain big sagebrush

85% of the estuary where young salmon fed in tidal marshes before heading to the ocean. Two runs of Stillaguamish chinook — summer and fall — were listed as threatened in 1999. A watershed-wide recovery plan followed.

By then, Matterand's grandson, Stanley Matterand, had inherited the property and was leasing the land to farmers. He had no interest in salmon restoration. When the Washington Department of Fish and Wildlife, in the early 2000s, asked if he'd consider selling, he replied, "Not until I'm dead and in the ground."

Then, in 2010, at the age of 89, he died.

No one in his family wanted the farm, and the state agency no longer had the money. The family reached out to the Stillaguamish Tribe, which purchased part of the property in 2012. Five years later, they tore down the dilapidated Victorian house. They breached the levee and built a new, smaller one farther from the river and Puget Sound that protected nearby farms while still allowing water to flood the site. They named the property "zis a ba," after a prominent tribal member who lived in the area in the 1800s.

For the first time in 140 years, brackish water returned to the 88 acres. The salinity killed the remaining crops. A juniper planted near the house lost its needles.

Local farmers wondered why the tribe had drowned perfectly good farmland. The tribe wondered if, after more than a century of agriculture, native plants, and eventually salmon, would return. "A lot of the agricultural folks that we talk to say, 'Well, that habitat is gone. You can't restore that,'" said Jason Griffith, the tribe's environmental program manager. "Actually, it's pretty easy to restore."

drowned perfectly good farmland. The tribe wondered if, century of agriculture, native plants, and eventually salmon, would return.

A few months after the tides returned, maritime bulrush poked through the mud. By the next year, the plant had spread to the horizon. "It was an instant meadow of maritime bulrush," said Greg Hood, a research scientist with Skagit River System Cooperative, the natural resource management agency for the nearby Sauk-Suiattle Indian Tribe and the Swinomish Indian Tribal Community. Hood worked with Griffith on zis a ba's restoration plans. "I've never seen anything restore so quickly," Hood said. "It was stunning."

In early July, Hood and Griffith wandered the site, navigating through sedges that reached to their hips. It's even thicker now, Griffith said, smiling. Seaside arrowgrass' spindly budding stems stretched toward the blue sky. In a few weeks, its small purple flowers would color the marsh.

Nothing was planted. The seeds came in with the tide.

"There's just a big melange of seeds swirling around in the tidal waters of Puget Sound," Hood said. Nearby remnant marshes that were never developed, like those in Port Susan Bay south of zis a ba, provide enough native seeds. Tides have naturally reseeded other Puget Sound estuaries. Under the right conditions, seeds will float in, then grow.

SOME PEOPLE with the project were skeptical when Griffith proposed not revegetating. "Where's the planting plan?" they asked. Griffith joked that he could have handed them a tide chart: "Here's the planting plan. Twice a day, that's when they get planted forever."

Simply breaching levees, though, isn't enough. Over decades, heavy agricultural equipment compacted the soil, creating an impervious clay layer up to five feet thick. "We used to think that you could just let the tides carve the channels and nature would know where the channels should be," Hood said. Water eventually erodes channels, but salmon can't afford to wait.

Hood has spent several decades studying Puget Sound's tidal marshes. Before white settlement, thickly vegetated marshes would have kept the channels — the veins of the estuary — shaded and cool, full of insects for young salmon to eat. He developed a mathematical model to predict how many channels and tidal outlets a site should have. At zis a ba, it recommended three miles, with seven outlets for salt water to move in and out. The channels vary in length, width and depth. They spread water across a more textured surface and allow seeds to settle. Without enough channels or outlets, high-velocity tides scour seeds away.

At Fir Island Farm Estuary Restoration Project, for example, north of zis a ba, the state Department of Fish and Wildlife constructed more than two miles of channels in 2016. According to Hood's model, there should be about 6.8 miles weaving through the 131-acre site. Tides funnel through just one outlet when Hood thinks there should be somewhere between 12 and 20. Much of the property resembles a mudflat more than a marsh. The state seeded 12 acres, spending $20,000 on seeds that Hood believes likely washed away. Altogether, the project cost $16.4 million.

Restoration science is relatively young, and scientists have only been restoring tidal marshes in the area for about 20 years. When construction began on Fir Island, scientists had faith that water could carve channels. But people first have to step in to prepare the site, then trust that the plants will respond.

IN THE 1980S, the Stillaguamish Tribe of Indians voluntarily ceased commercial fishing of chinook salmon, citing their critically low numbers. Kadi Bizyayeva was among the first generation that was unable to harvest chinook.

While almost 150 years of agriculture is a long time from a human perspective, to a landscape, it's the blink of an eye, said Bizyayeva, a tribal council member and the tribe's fisheries director. "Almost as soon as the habitat was re-established, we saw fish" in zis a ba, she said.

The tribe recently purchased two more sites nearby. Between all three, about 718 acres will become salt marsh again, filled with plants brought by the tide, twice a day, every day.

SAGEBRUSH STEPPE

On Aug. 10, 2015, lightning struck a hay bale in southwestern Idaho's Owyhee Mountains not far from Boise, just outside the northern Great Basin. Fire ripped through rolling hills and sagebrush-speckled rocky outcrops. About 280,000 acres burned, almost all of it greater sage grouse habitat that is largely owned by the Bureau of Land Management. The Soda Fire was the first massive blaze to occur after then-Interior Secretary Sally Jewell ordered agencies to do a better job of restoring burned sagebrush landscapes. A few weeks after the fire, the U.S. Fish and Wildlife Service opted not to list sage grouse under the Endangered Species Act.

The Soda Fire gave the BLM an opportunity to show that it could improve sage grouse habitat. Overgrazing, agriculture and energy development facilitated by the agency transformed the birds' home. The once-vast silver-green landscape shrank to just 56% of what it was. Wildfires fueled by inva-

A network of relationships is revived when water is the first to return to the Ecological memory is awakened, and foods regrow.

sive cheatgrass also threaten the ecosystem. "We're working for the survival of the sagebrush landscape," Idaho State BLM Director Tim Murphy told the *Idaho Statesman* at the time. "We have to push the limits on seed, herbicide and equipment," T.J. Clifford, the post-fire rehabilitation team leader, said. To crowd out cheatgrass, they said, they needed seed — and lots of it.

A few months later, the BLM sprayed thousands of acres with herbicide from a helicopter and sowed 1.6 million pounds of seed, spending nearly $30 million over several years. Some seeds were sagebrush, but others were cheaper, readily available nonnative grasses and flowers and native grass cultivars that lack extensive wild traits. Most cultivated native seeds are collected outside the Great Basin, grown on farms and not adapted to the Owyhee Mountains, raising the question: Are they still native?

"Native versus nonnative, it's not a binary thing," said Matt Germino, a U.S. Geological Survey supervisory research ecologist who studied the Soda Fire. "It's actually a gradient."

Most "native" grass seeds available to federal agencies for large-scale restoration are cultivars. Grasses are easy to grow, and cows like them. Some, like Sherman big bluegrass seeded after the Soda Fire, were selectively bred to grow bigger, taller and earlier in spring, becoming uniform crops that are more useful to cattle than to sage grouse. Others haven't undergone such intensive selection. If they're collected from wild populations near restoration sites, they're considered more "native" — "kind of native," as Germino said. But under any selection, plants lose genetic diversity critical for long-term survival. Native plants have figured out how to persist in certain places. Some develop biological bet-hedging strategies to have long-lasting dormancy periods until growing conditions are just right. They've adapted to particular soils, precipitation and elevation, and they pass on that genetic knowledge to future generations through their seeds.

In the 1930s, after drought and overgrazing eliminated vegetation from sagebrush lands and caused severe floods, the U.S. government developed grass crops to stabilize soils and restore grazing lands. After wildfires, BLM land managers similarly scramble to find seed on short timeframes, often choosing the cheapest, fastest-growing grasses to stabilize soils, outcompete cheatgrass and satisfy ranchers. One 2005 federal paper suggested that such widespread cultivar plantings may have "irreversible genetic and ecological effects." BLM officials, however, simply call the seeds native. "It's not necessarily the best thing to put back out on the land," said Nancy Shaw, a scientist emeritus for the U.S. Forest Service's Rocky Mountain Research Station. "That's been kind of an ongoing battle."

For decades, scientists like Shaw researched and advocated for more careful collection and growing of native plants so that their genetics remain unaltered. The BLM is part of the DOI's National Seed Strategy Keystone Initiative to increase the amount of genetically appropriate seed for restoration that was projected to cost an estimated $360 million from 2015 to 2020. The Biden-Harris administration has allocated $218 million for national seed efforts so far. But such an ambitious endeavor is still years out.

Many researchers say intensive seeding efforts might not be needed in some areas after fires, since long-living dormant seeds persist underground. "Some of these places have pretty impressive seed banks post-fire," said Sarah Kulpa, a restoration ecologist and botanist for the U.S. Fish and Wildlife Service in Reno. "People don't think about this in sagebrush."

ROGER ROSENTRETER walked slowly, scanning the ground, hands stuffed in jean pockets. The retired BLM botanist carefully observed plants growing on tan hills that burned in the Soda Fire. Fierce winds can whip through this area at 4,200 feet, but the weather was calm for mid-November. He rubbed the narrow leaves of one sage plant, smelled them and identified the species, noting its sharp, sweet smell. After 35 years of working in arid ecosystems, including 26 as the Idaho state botanist, he is an expert at identifying the shrubs.

"This is what was here before," Rosentreter said, bending down to rip off a bit of early sage, a low-growing, tiny-leaved species. The petite shrub survived the fire. It's the preferred winter food for most animals here. At many of Idaho's largest leks, where male sage grouse perform their intricate mating dance and vocalize otherworldly melodies, early sage is the most common species.

But the BLM didn't seed early sage. Much of the local vegetation and soil wasn't inventoried before fire blackened the hills, and land managers didn't know exactly which shrubs grew here. They relied on broad scale soil maps that failed to consider that even the slightest change in soil type or elevation can determine which species grows where. "People like to generalize and not really get into the details," Rosentreter said. "It's hurt sage grouse."

With over 20 species and subspecies, sagebrush are easily confused, yet ecologically distinct. Big sagebrush, the most common type in the West — the kind most people imagine when they think of sage — has a handful of subspecies that evolved to grow in different soils and at elevations with varying precipitation. When they're planted elsewhere, they might grow for a few years, even decades, but still not survive long-term.

Commercially available sagebrush seeds often come from basin big sage, a

landscape.
A promise kept.

subspecies of big sagebrush. It's too time-consuming to grow agriculturally, so its seed can only be collected by hand from wild plants. Many seeds are gathered in Utah or Nevada. Basin big sage prefers well-drained soils, like roadside ditches, and produces massive seedheads, convenient for seed collectors. But sage grouse rarely, if ever, eat it. The shrub didn't grow naturally in the burned site Rosentreter visited. The BLM seeded it from a helicopter.

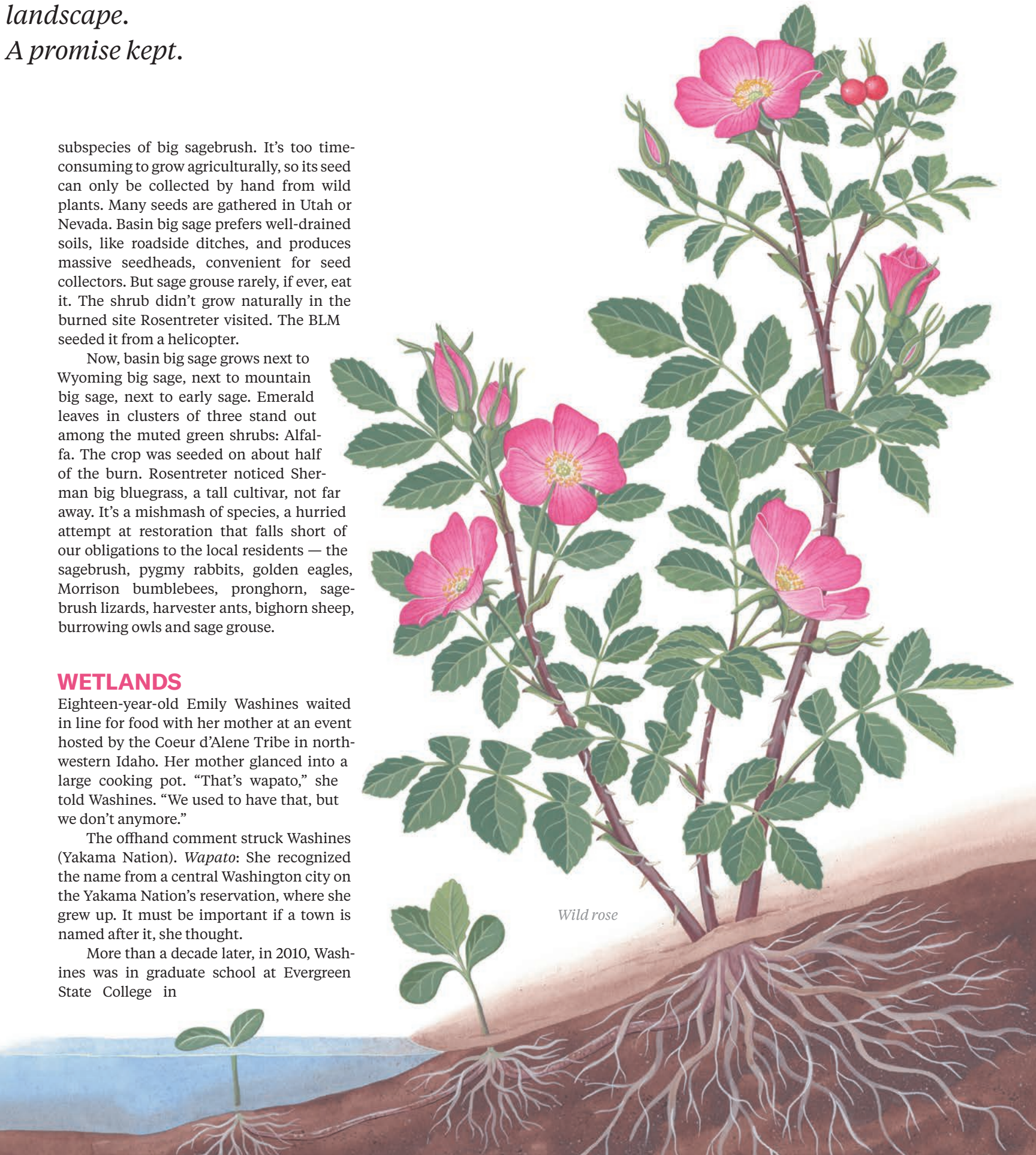
Now, basin big sage grows next to Wyoming big sage, next to mountain big sage, next to early sage. Emerald leaves in clusters of three stand out among the muted green shrubs: Alfalfa. The crop was seeded on about half of the burn. Rosentreter noticed Sherman big bluegrass, a tall cultivar, not far away. It's a mishmash of species, a hurried attempt at restoration that falls short of our obligations to the local residents — the sagebrush, pygmy rabbits, golden eagles, Morrison bumblebees, pronghorn, sagebrush lizards, harvester ants, bighorn sheep, burrowing owls and sage grouse.

WETLANDS

Eighteen-year-old Emily Washines waited in line for food with her mother at an event hosted by the Coeur d'Alene Tribe in northwestern Idaho. Her mother glanced into a large cooking pot. "That's wapato," she told Washines. "We used to have that, but we don't anymore."

The offhand comment struck Washines (Yakama Nation). *Wapato*: She recognized the name from a central Washington city on the Yakama Nation's reservation, where she grew up. It must be important if a town is named after it, she thought.

More than a decade later, in 2010, Washines was in graduate school at Evergreen State College in



Wild rose

"That's wapato. We used to have that,

Olympia. She asked her husband, a fellow Yakama Nation tribal member, what topic he'd suggest for her capstone project. "I would do it on the return of the wapato," he said.

Wapato is a potato-like tuber that grows in thick patches along slow-moving water. The plant hadn't grown on the Yakama Reservation for at least 70 years, not since white settlers drained wetlands for farms.

Beginning in the 1990s, Yakama Nation scientists, including Washines' husband, an archaeologist, worked to transform a more than 400-acre barley and wheat field along Toppenish Creek into wetlands. The property was surrounded by farms, not far from the dry, shrubby foothills of the eastern Cascades, and the glaciated Mount Adams. First, water returned after levees were breached. A few years later, tule appeared. Willows, roses and currants followed. Then, emerald leaves sprouted — wapato. Scientists planted nothing.

At the site, called Xapnish, wapato's return surprised everyone, even tribal elders. "They wanted to just go and see it," said Washines, who at the time worked as the remediation and restoration coordinator for Yakama Nation Fisheries. She took several relatives, including Johnson Meninick, out to the site. Meninick served on tribal council during the 1970s, when the Yakama Nation first prioritized returning land to historical use, especially along waterways. Once he saw the familiar leaves, he had flashbacks: He visited the area as a child, when family members gathered the starchy tubers for dinner.

Washines grew up hearing stories about First Foods. At the ceremonial table where they are served, water is poured first. Then the other foods follow. Generations ago, the people made a promise. They would speak for the foods, remember their order, and take responsibility for them. In return, the foods would care for the people.

A network of relationships is revived when water is the first to return to the landscape. Ecological memory is awakened, and foods regrow. A promise kept. At Xapnish, tribal elders say the land is teaching us something, Washines said. "And we need to take it in."

IN THE YAKIMA VALLEY and elsewhere in the West, water historically flowed heaviest in spring. Mountain snowmelt gushed down rivers, and water covered floodplains until summer, when flows dried up. "That is the driver of most river ecology in the West," said Tom Elliott of Yakama Nation Fisheries, who worked on the Xapnish property. Fish migration and riparian plant regeneration evolved with spring flooding, he said. Irrigated agriculture turned this process upside-down. Reservoirs and water diversions now catch spring runoff and release it slowly throughout the summer for crops.

Toppenish Creek's floodplain was so altered by farming that scientists had no historical remnant to reference when the tribe required the property. They weren't sure what to restore, said Tracy Hames, a biologist who helped lead the project. Tribal elders took Hames and other scientists to the site several times and recalled how their relatives paddled canoes 20 miles upstream, outside the creek's main channel, without portaging. "We'd look at that and scratch our heads and say, 'Well, I believe you, but I cannot envision what you're talking about,'" Hames said.

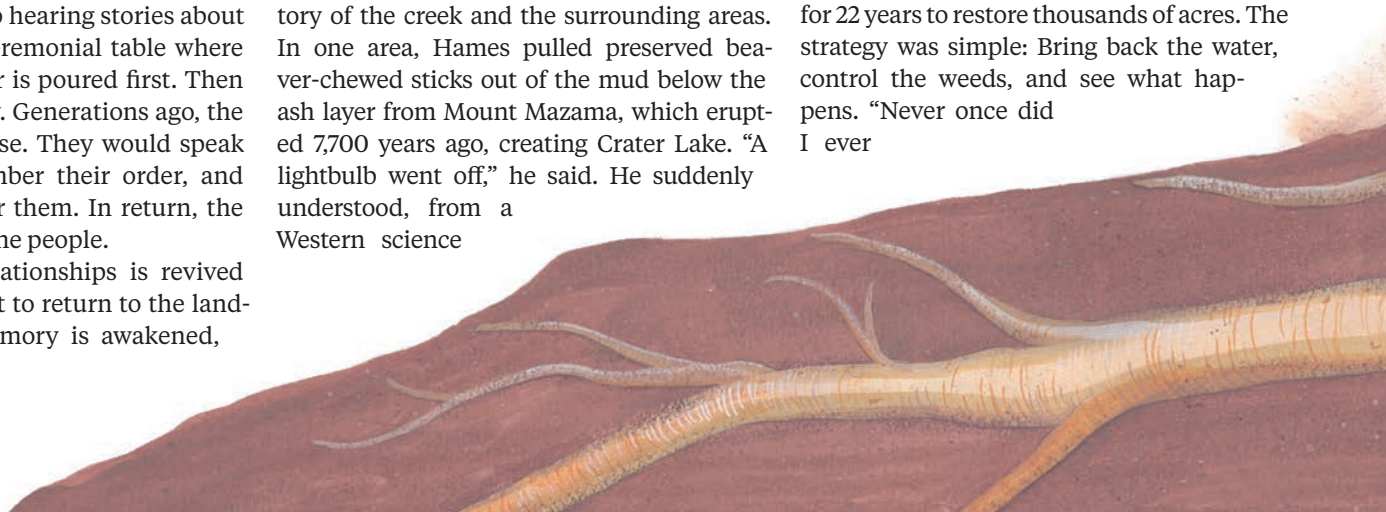
The creek puzzled scientists like Hames because it moved through an unusually wide and flat floodplain where canoeing seemed impossible. Scientists spent 15 years researching the geologic, hydrologic and cultural history of the creek and the surrounding areas. In one area, Hames pulled preserved beaver-chewed sticks out of the mud below the ash layer from Mount Mazama, which erupted 7,700 years ago, creating Crater Lake. "A lightbulb went off," he said. He suddenly understood, from a Western science perspective, what tribal elders had been saying all along. Extensive beaver dams raised water levels along Toppenish Creek, creating an abundance of wetlands and wapato.

To restore Xapnish, workers breached levees along the creek so water could move across the floodplain. They created basalt structures that functioned like beaver dams, raising water levels. As the tribe purchased more land in the 1990s and 2000s, they also secured associated water rights. Rather than using the creek for irrigation, they used their right for instream flow and acquired nearly all the irrigation rights along the creek. "That's when you can really rock-and-roll and start doing some stuff," Hames said.

After the levees were breached, nonnative cattails sprouted. To remove them, the tribe dried up the wetlands by closing a water gate, among other methods, mimicking how water would naturally dwindle by late summer. For two years, they performed what Hames called a "cut and flood" method. They mowed cattails to their stalks, burned them, and inundated the area. Water seeped into the freshly cut plants, killing them. "Then all the good native stuff started coming up," Hames said.

A photo taken in 1995 after the property was purchased shows a sparse streambank. By 2006, willows grew so thickly that the creek was no longer visible. Tall green tule beds replaced rows of golden grains. Soon after, tribal members began harvesting the tules. Beavers, swans and wood ducks — a biodiverse wetland — also returned.

Hames worked with the Yakama Nation for 22 years to restore thousands of acres. The strategy was simple: Bring back the water, control the weeds, and see what happens. "Never once did I ever



but we don't anymore."

plant a wetland plant in any of our projects," said Hames, who is now the executive director of the nonprofit Wisconsin Wetlands Association. The results were surprising and yet expected, a testament to the tribe's expertise. Many wetland restoration projects lack such intimate place knowledge. They'll get a site wet without considering how water originally flowed across the landscape. Such projects often end in weeds, Hames said. Project managers plant native seeds, garden it for five years, check their boxes and leave.

The Yakama Nation continues to manage water levels at Xapnish, burning the site and mowing to control invasives, Elliott said. It's a relationship to be maintained in perpetuity. "I don't think anything is ever done in this landscape," he said.

SOON AFTER WAPATO RETURNED, Washines brought her infant daughter to Xapnish so she could see the plant, smell the rushes and the mud and start to form memories around it.

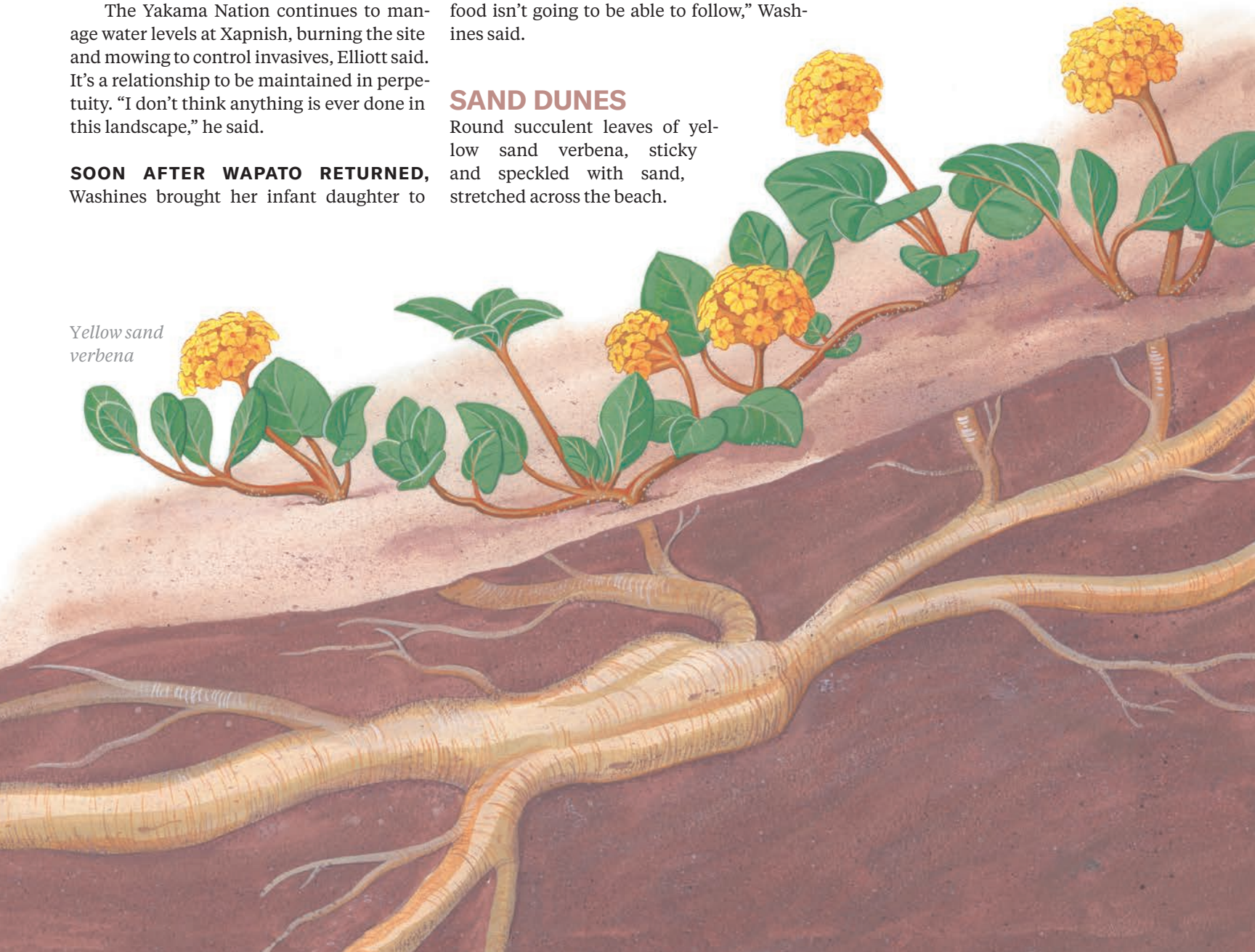
One of Washines' earliest memories is of sitting at a ceremonial table where traditional foods were served. She was 4, her chin barely above the table, as she listened to her grandmother speak of their responsibility to care for the foods. Then food was placed on the table.

First came water. Then fish, deer, roots and berries. Then water again.

"If you don't have the water, the other food isn't going to be able to follow," Washines said.

SAND DUNES

Round succulent leaves of yellow sand verbena, sticky and speckled with sand, stretched across the beach.



Yellow sand verbena

"There's a relationship that has been broken. So until that relationship is rekindled, hopefully those seeds will last, and those plants will be able to come back."

The stems creep over and below the sand, creating mounds that are six feet across. In spring, canary-yellow flowers bloom in spherical clusters and color the beige dune landscape along the central Oregon coast. The small flowers smell sweet, yet spicy. In the Hanis and Miluk languages of Coos Bay, the plant is called *tɬəmqá'yawa*, "the scented one."

Yellow sand verbena is a culturally important plant and traditional food for Indigenous people along the Northwest Coast, including the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians, whose unceded lands make up Oregon's south-central coast and coastal forests. Tribal members harvested the plants' edible taproot that's so thick it resembles an African baobab's tree trunk.

Dune plants like sand verbena thrive in the harsh, salty, wind-blown environment. Some need moving sand to grow and spread their seeds enclosed in winged fruits. Like alpine vegetation, plants here are small but stout, able to survive being blasted by sand, inundated by water, exposed to intense sunlight, or rained on for days. It's a dynamic system that aggravated white settlers. Sand regularly buried their roads and houses. "The drifting of the sand could certainly be stopped," a U.S. Forest Service silviculturist wrote in 1910. The agency aggressively planted European beachgrass to stabilize the dunes. The tall grass formed deep rhizomes that hold sand in place, creating a 25- to 35-foot-tall sand wall parallel to the ocean, covered in golden grass. Yellow sand verbena's edible roots and yellow flowers were replaced by grass monocultures and houses. Their sharp fragrance that once mixed with the salty spring air disappeared. Tribal harvests became memories, notes in old ethnographic journals.

By the 1980s, beachgrass took over the Oregon Dunes National Recreation Area, managed by the Forest Service. From Florence to Coos Bay, the dunes extend 40 miles as North America's largest expanse of coastal sand dunes. Now, grass and trees are expected to overtake some areas entirely, possibly within 10 to 30 years. Not only have native plants been displaced, but also Western snowy plovers, a federally threatened shorebird who nests on the sandy beaches.

Several years ago, though, yellow sand verbena returned, unexpectedly. After the Forest Service removed beachgrass with bulldozers and herbicide, a handful of plants emerged. They're abundant in a recently cleared half-mile section of beach near Florence. Beach evening primrose has reappeared, too. Their low-growing, fuzzy, firm leaves spread across the sand in rosettes where thick runners rope the plants together like mountaineers. Beach strawberry, seashore lupine, beach silvertop and beach morning glory have also returned. The bulldozing likely stirred up seeds buried several feet, possibly preserved for decades, though some seeds may have arrived on the wind.

Researchers hope to grow these rare dune plants to create a seed supply for Oregon coast restoration. Non-Native scientists are reluctant to trust what's growing in front of them. Such an acknowledgment requires a shift in expectation, a letting go of the urge to create instant "old-growth" ecosystems packed full of plants from a pre-colonization past.

Already, the restoration has reawakened a relationship between people and the dunes, said Ashley Russell, assistant director of culture and natural resources for the Confederated Tribes. Plants co-evolved with the tribe through regular harvests. Under pre-colonial tribal management, sand moved freely. "There's a relationship that has been broken," she said. "So until that relationship is rekindled, hopefully those seeds will last, and those plants will be able to come back."

STARTING IN 1992, a group of volunteers spent six years pulling beach grass at the Lanphere Dunes, now part of Humboldt Bay National Wildlife Refuge near Eureka in Northern California. By 2001, hummocks of pink, purple and yellow flowers dotted open mounds of sand, a dune garden. Yellow sand verbena was one of the first plants to return. In other dune restoration projects, plants have recovered on their own.

Without a native seed source for dune plants in Oregon, the Forest Service has been forced to step back and observe.

Time might be just what the plants need. They've reawakened with the moving sand and now expect it, Russell said. They've returned after fire, when levees are breached, once crops are removed and weeds are killed. They were pushed out for a while but never forgot their home.

Like human relationships, connections between plants and people require nurturing, an element of trust that things can work out.

If plants have responded, then we should listen.

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ESSAY

Taken by the wind

Issei poetry between the world wars.

BY KENJI C. LIU | PHOTO BY STEPHANIE SHIH

Why do I suffer
spring rain wind lightning
like a scarecrow
listless
in this cold twilight
I, an immigrant child

—Morio Hayashida, from "Immigrant Child," in *Where to Go,* Los Angeles (trans. Andrew Leong and Lisa Hofmann-Kuroda), 1928

SEVENTEEN-YEAR-OLD Morio Hayashida stepped off the Japanese ship *Shinyo Maru* into San Pedro, California, in late 1921. Seven years later, while living in Los Angeles, he published a 220-page collection of Japanese-language poems, 向處に行く (*Where to Go*). Hayashida was part of a literary community of Issei (first-generation) immigrants — educated, aware of Japanese modernist literary trends, and firmly rooted in life in the United States.

Few Americans realize that between the world wars, there was a flowering of Japanese-language literature in the U.S. The Issei brought their love of poetry to the Western U.S., establishing living-room literary clubs in Los Angeles and other West Coast cities and publishing literary journals and poetry collections. As they lived and worked in the U.S., they began to create a distinctly Japanese American aesthetic, forged from daily experience.

The day-to-day reality of being a Japanese immigrant in a hostile country — with its melancholy, alienation and ambivalence — forms an important subtext to Hayashida's *Where to Go*.

In late 2020, as the pandemic was bringing the world to a halt, Hirokazu Kosaka, master artist in residence at the Japanese American Community and Cultural Center, introduced me to his collection of pre-war Japanese-language poetry books written by Issei in LA. These rare books — and hundreds more in his garage — had never been translated. His grandfather, Hayashida, also left behind boxes of handwritten manuscripts and meticulously written diaries.

Over the coming months, as I translated bits and pieces, the collection's value became clear. For the Japanese American community and the Issei's descendants, few of whom read or understand Japanese, it's a chance to learn what their grandparents' and great-grandparents' lives were like and discover that their relatives were artists with rich innerlives. For scholars, it is an opportunity to reach back to the first generation of Japanese American poets. Studies of Asian American literature usually begin with the first generation writing in English, so that the entire previous generation is missing.

As Andrew Leong, a leading scholar of Japanese-language Japanese American literature, put it: "Many copies of these journals and anthologies were thought to be lost over the course of the World War II incarceration of Japanese Americans; their preservation by the JACCC is a small miracle."

The interwar period in the U.S. was a time of vehement anti-Asian politics, coming on the heels of a different pandemic, the Spanish Flu (1918-'20). In 1875, 1882, 1907 and 1924, successive federal acts and agreements slowed and then halted migration from Asia. *Ozawa v. U.S.* (1922) denied citizenship to Issei or first-generation Japanese immigrants. Alien Land Laws were passed in California (1913, 1920) and other states, prohibiting "aliens ineligible for citizenship" from owning land. Compounding all this was the Great Depression, starting in 1929. But despite everything, Issei writers produced poetry, stories, essays and plays, making beauty from their lives.

Like many immigrants, Hayashida had limited options. In an environment of legalized racism, people sought out the mutual support of Japantowns like Little Tokyo. The community faced two opposing pressures — the desire to assimilate and prove they belonged, and the desire to preserve Japanese culture and language. Many first-generation immigrants could not afford to return to Japan, but were legally prevented from moving forward in the U.S.

Even though Issei were writing here and their books and literary journals were published in the U.S.; even though some were directly connected to white modernist artist peers, their Japanese-language work went unrecognized, categorized as "foreign" poetry. To position their writing as "American" would bring into question the nation's default English-centric stance.

Still, the 1930s were a vibrant artistic period, not just for Japanese-language literature but also for photography, visual art and dance. In Los Angeles, Morio Hayashida joined Japanese literary clubs and socialized with fellow artists and pre-war modernists like writer Yone Noguchi, writer and actor Sadakichi Hartmann, artist Takehisa Yumeji and Michio Itō, a dancer. Through these networks, Issei writers explored their experiences and began to formulate a Japanese *American* sensibility. They wrote, published and supported each other, printing their books in Japan, since Japanese book typesetting in the U.S. was extremely limited. But most of this ended when the U.S. interned Japanese Americans in 1942.

In English-language poetry, there is some recognition that early white modernists like Ezra Pound were inspired by translated Japanese and Chinese poetry and by writers, such as Yone Noguchi, who circulated in bohemian circles. Issei poets brought the strands of Japanese and American modernism together, departing from classical Japanese poetry and experimenting with free verse.

At the same time, they also drew on classical forms to write about their day-to-day experiences in Japanese. The Southern California Gardeners' Federation regularly published senryu by gardeners who tended the yards of Los Angeles' wealthy. Senryu poems are similar to haiku in structure, but emphasize everyday human life, often with cynical humor — perfect for recording frustrations and struggles.

Books, diaries and poetry collections from the Issei Poetry Project at the Japanese American Community and Cultural Center in Los Angeles, California.

White, black, and yellow gardeners glared at each other as they competed for the same job.
—from *Gardeners' Pioneer Story*, Los Angeles (trans. Sunny Seki)

The land we developed was owned by others.
—from *Gardeners' Pioneer Story*

Current political events caused the number of white customers to decrease.
—from *Gardeners' Pioneer Story*

Traditional haiku, with its seasonal and nature references, lent itself to the West Coast's flora.

Round, moonlit night, zebra grass heads all lined up
—Toshiyuki "Boshichō" Okamura, from *Torch*, Los Angeles (trans. Kenji Liu), 1933

When the grass withers, the cactus needles look sharper
—Sekitani Hourou, from *Torch*, Los Angeles (trans. Kenji Liu), 1933

And Issei poets wrote about everyday life on the West Coast, using imagery that could only spring from here.

The corn's lower leaves are yellowing, smell of burning tortilla
—Handa Setsuyu, from *Torch*, Los Angeles (trans. Kenji Liu), 1933

The anthology *Torch* (1933), written in commemoration of the 1932 Los Angeles Summer Olympics, offers insight into the international effort it took for the Issei to publish their work. Several poetry coteries contributed, from LA, the West Coast and Japan. Japanese-language poetry, with its sometimes esoteric language or use of obscure Chinese characters, required a robust set of typographic characters not available here. Though the publisher, Agosto-sha, had an address in Little Tokyo, the printer was in Tokyo.

The anthology also offers insight into the politics of the time. Japan, following its victories in World War I, had turned toward imperialism and colonization. The nationalism of the Olympics hung over its athletes, some of whom were colonial subjects from Korea. Some Issei attending the Olympics grew misty-eyed with nationalism.

Olympics
When the Japanese flag rises, a flood of tears
—Sato Ichimizu, from *Torch*, Los Angeles (trans. Kenji Liu), 1933

Hayashida contributed one poem to *Torch*:

Street of Lights

Linger on a bridge on a street of lights
Cast a tired evening eye on a spider web
Under the palm tree's shade, a bento spread in the breeze
Run around after a child on fresh green
In the shade with shoes off, a nap with singing insects
Everyone quiet in the grapevine trellis, evening wind
Through the tunnel, again the tiring tunnel
Taken by the wind, look at that hat

—Morio Hayashida, from *Torch*, Los Angeles (trans. Kenji Liu), 1933

Eventually, the forced eviction of Japanese Americans to desolate concentration camps stifled most literary activity in Japanese. Assimilation became preferred. Japanese-language Issei writing was lost to the next generation's coming of age; the Nisei (second generation) generally wrote in English. Issei notebooks of handwritten kanji compositions were packed away in suitcases and left in attics or basements. Many Nisei could not read them anyway.

The significance of Hayashida's *Where to Go* is multifold. In the context of American poetry between the world wars, it is an avant garde poetics, unknown to most. It reveals a unique slice of first-generation Japanese immigrant life in the U.S. during a time of great hostility. It represents the labor and support of the Japanese American literary community and the transnational connections that facilitated its publication. It challenges language, nation and race-based assumptions about what counts as American literature.

Despite anti-Asian attitudes (and sometimes because of them), Issei writers sparked a flowering of poetry and literature that we are now just starting to recover. Today, we understand more clearly that many Issei artists — writers, photographers, dancers and sculptors drawing on Japanese and European modernism — were experimenting in ways that were ahead of their white counterparts, even as white writers and artists drew direct inspiration from Japanese artists. Issei writers who could mix with the white bohemian set were crucial to the spread of Japanese poetry. We need to make this more visible, to challenge the idea that a white artist's singular work breaks from tradition through the genius of the creator.

Hayashida remained active in LA's Nikkei community, working as a gardener, leading the Southern California Gardeners' Federation and helping to establish a community bank. After his death in 1993, his papers passed to his grandson, Hirokazu Kosaka.

Today, Japanese poetry written by the Issei is being translated more actively as more heritage speakers and translators turn their attention to previously inaccessible work. Much of the focused is on work written for the internment camps' literary magazines. JACCC's effort, which seeks to digitize a large portion of the collection and make it available online, is one of the only efforts to examine prewar literature. Its importance cannot be overstated; a collection previously lost to war, racism and the language barrier has become a bridge back to the first generation.

Now, scholars can trace transnational networks of creative influence and question the dominant narratives about U.S. literature. The Japanese American community is reconnecting with its grandparents and great-grandparents (a connection often broken because of the language barrier, the camps and generational trauma). And present-day communities under attack can now look to these Issei creators for inspiration and affirmation — a vivid reminder that, even under the most challenging conditions, it is possible, and necessary, to make art.

CONFETTI WESTERNS

A column that explores the queer natural and cultural histories of the American Southwest.

Radical faeries

How a gathering of gay men in the Sonoran Desert started a worldwide movement rooted in nature.

BY MILES W. GRIFFIS

WHEN I FIRST MOVED to Los Angeles, I explored the "secret stairways" of Silver Lake on evening walks, following narrow concrete steps up the jasmine-laced hills of my new neighborhood. One night I found a set overlooking a moonlit reservoir between terracotta-tiled apartments and agaves as tall as telephone poles. A plaque at the base read, "Harry Hay founded the Mattachine Society on this hillside on November 11, 1950."

Someone had taped a homemade memorial onto the plaque. It featured a photo of Hay: Moonbeams illuminated the elderly, sun-weathered man in a cowboy hat, long floral print skirt, chunky necklace and earrings.

I'd later hear stories about Hay from my friend Craig Collins, who organized campouts that Hay attended in California's Anza Borrego State Park in the '80s and '90s. I first met Craig a few years later while reporting a story about unhoused anglers for *High Country News*. I was riding my bike along the banks of the Los Angeles River one January afternoon when I found him. He was looking at an osprey, binoculars pressed to his eyes, and we began chatting about everything from red-whiskered bulbuls to the extinct neighborhood gay bars of yesteryear. Well, *Craig* chatted; I nodded and merely absorbed his knowledge.

He told me about how Hay's trailblazing work with the Mattachine Society, one of the first LGBTQ+ rights organizations in the United States, dovetailed with a new counterculture 30 years later. Hay became dissatisfied with the trajectory of gay activism and culture, and so, in the late 1970s, he started the New Age "Radical Faerie" movement. He moved to New Mexico in the early '70s, but was drawn back to Los Angeles like a calliope hummer to a *Dudleya* after his Radical Faerie co-founders, Don Kilhefner, founder of what is now the Los Angeles LGBT Center, and Mitch Walker, a Jungian psychologist and author of *Men Loving Men: A Gay Sex Guide and Consciousness Book*, convinced him and his partner, John Burnside, to return to the city.

In the summer of 1979, they advertised the "Spiritual Conference for Radical Faeries," hanging posters in bookshops, gay community centers and health food stores across Los Angeles. "A CALL TO GAY BROTHERS," it read, displaying a drawing of a nude Adonis on a desert playa. "Exploring breakthroughs in gay consciousness …"

A series of "strange doings" was reported by the *Farmers' Arizona Gazette* at an ashram outside of Benson, Arizona, on Sept. 5, 1979. When I first read about the event, it was hard not to be jealous. I romanticized it the way Jimi Hendrix fans talked about Woodstock. Over 200 "faeries" spent Labor Day weekend performing rituals, eating vegetarian meals and attending spur-of-the-moment workshops in subjects ranging from desert botany to auto-fellatio. In *The Trouble with Harry Hay*, historian and attendee Stuart Timmons wrote, "Cosmetic rainbows trailed from eyelids, past mustaches and around nipples; feathers, beads, and bells dangled everywhere; any clothing worn was for shade or to pad a seat." I imagined myself at the gathering in nothing but a wide-brimmed wicker hat, the scent of sand verbena slightly covering my body odor.

A photo from the gathering — "conference" was quickly deemed "too hetero" — shows the aftermath of a mud fight with 40 or more faeries covered in wet Sonoran earth. "Most had renounced spiritual beliefs because religion had renounced them," Timmons wrote. "But the spiritual jolt of the gathering caused them to undergo a complete internal re-evaluation."

The following year's gathering took place near Boulder, Colorado, and soon regional events began to pop up like giant stalked puffballs. Craig told me that it was not just a way to escape from the drag of heteronormative society, it was also a kind of refuge from mainstream gay culture. *Woof* — here were the words I'd been looking for for so many years. Canyons of ocotillo shield both gazes. I loved being surrounded by so many queer people since moving to Los Angeles. But I also longed to be forever in the desert: It's the constant tug-of-war so many crunchy queers face between the city and the rural.

"The heart circle was and still is the centerpiece," filmmaker Eric Slade, director of the documentary *Hope Along the Wind: The Life of Harry Hay*, told me. Slade explained how faeries sat in a circle at every gathering as each person was given time to bare their soul. Photos of the desert campouts in Collins' *Faerie Dish Rag* newsletter depicted faeries gathered around Hay, the mother duck. Slade, who joined at Craig's gatherings, remembers Hay's long-winded lectures. "He believed that queer people were on the planet for a reason," Slade said. "And he thought it was essential that we got together in nature and discovered why."

Hay passed away in 2002 at the age of 90, but the Radical Faerie legacy lives on. It has inspired a loose worldwide network of gatherings and numerous year-round "radfae" sanctuaries, in Joshua Tree, California, Zuni Mountain, New Mexico, and as far away as Australia and Portugal. The events continue to draw both veteran and new faeries alike, connecting queer people across generations.

"There's subtle homophobia that's going on all the time that we don't even notice," Slade said. "The desert allows us to celebrate our existence." And queer people do celebrate in the desert. Two of the largest mainstream gay events, Palm Springs White Party and Dinah Shore, both started as small desert gatherings. Burning Man, in Nevada's Black Rock Desert, attracts numerous queer attendees, including a radical faerie camp called Comfort and Joy. Some joke that many straight people "spend a lot of money to get to Burning Man, just to be gay for the week." They wear bells, beads, and feathers and dance to house music that was started by the queer Black and Latino underground scene in the late '70s Chicago. And there's the orgy tent.

The desert strips us bare. We blame the heat and aridity, but we wear only ourselves in our desire to cast a connection. When I flip through archival copies of Craig's *Faerie Dish Rag*, I see myself, my boyfriend and my friends, all trying to answer the same questions as the faeries, all of us sitting cross-legged under the white sun. We do it with rainbows trailing on our nipples during bare-assed botany excursions. And we bare our hearts not only in circles, but in dots, segments, triangles and polygons, too.

Opposite, clockwise from top left: At an intimate campout in Anza Borrego Desert State Park, 1994, Harry Hay expounds his vision of personal empowerment centered in the natural world. **Craig Collins** Harry Hay and others at the national march for Lesbian and Gay Rights in Washington, D.C. **Craig Collins** Don Kilhefner with Eric Lichtman at the first Radical Faeries gathering in 1979. **Courtesy of Don Kilhefner** Harry Hay and others at Abigail Lake in 1974. **James C. Hormel LGBTQIA Center / San Francisco Public Library**

Heard Around the West

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

BY TIFFANY MIDGE | ILLUSTRATION BY ARMANDO VEVE

OREGON

Holy Chicken Little, Batman, we didn't see that coming! The door plug that blew off an Alaska Airlines jetliner in January made an unexpected landing in the yard of a Portland science teacher, KOIN 6 reported. It detached itself just minutes after the Boeing 737 took off from Portland and plummeted 16,000 feet, only to crash into a tree in Bob Sauer's backyard. "In the flashlight beam, I could see something gleaming white in the trees in the back that isn't normally there," Sauer said. "And when I went to investigate it, it was very obviously a plane." Investigators from the National Transportation Safety Board were delighted to retrieve the 65-pound, 4-by-2-foot chunk of airplane. We pause here for a safety reminder that even plugged emergency exits are never intended for mid-flight use.

Speaking of airports, there's good news: Portland International Airport introduced two therapy llamas, Beni and Prince, to help calm stressed-out passengers during peak holiday traffic, Oregonlive.com reported. Perhaps these no-drama llamas can also reassure anyone anxious about airplane door plugs crash-landing on their head while they're visiting Portland. The city is a veritable mecca of cool vibes, and what better way to uphold its weird reputation than by greeting visitors with goofy quadrupeds straight out of a Dr. Suess book?

UTAH

Never judge a book by its cover, or a cat by its cuteness. Fox59.com reported that the Hogle Zoo in Salt Lake City recently acquired Gaia, an adorable cat native to Africa. Gaia is a black-footed cat — though "black ops" cat might be a more accurate name for a species regarded as the deadliest hunter in the entire cat family, with an estimated successful kill rate of 60%. According to the PBS miniseries *Super Cats*, these "sneaky" little cats are capable of extraordinary patience, willing to wait, completely immobile, for up to two hours to pounce on their prey. So don't be fooled by this new kitty's cuteness; she means business. Black-footed cats are likely the smallest cat on the planet, with adults weighing between 2 and 5 pounds and standing about 8 inches tall. The species is listed as "vulnerable" due to habitat loss, and the Black-Footed Cat Consortium, which brought Gaia to Utah, is initiating breeding programs across the country. Fortunately, the Hogle Zoo already houses a male named Ryder. Here's hoping that Gaia will decide to swipe, or paw, "right" when she finally meets Ryder.

WYOMING/YELLOWSTONE NATIONAL PARK

Rangers cited Hollywood superstar Pierce Brosnan for "foot travel in a thermal area" and "closure violation" after he was spotted leaving the boardwalk at Mammoth Terraces in Yellowstone National Park last November, Backpacker.com reported. Bond, James Bond, wouldn't be the first, or last, sightseer to ignore the many warning signs plainly displayed throughout the park. The park sees millions of visitors annually, and those who don't comply with the park's rules — legendary spies or not — too often end up getting burned or otherwise seriously injured. *The Los Angeles Times* reported that the actor, who pleaded not guilty, has a hearing scheduled for Feb. 20. Perhaps Brosnan was doing research for a sequel to the 1997 film *Dante's Peak*, in which he played a volcanologist who visits a quaint mountain town (played by the quaint mountain town of Wallace, Idaho), where a slumbering volcano threatens to destroy all life within a hundred miles. Well, we've got an idea: Why not make a film about Yellowstone's own massive volcano and spice it up with the cast from *Mamma Mia?* We can see it now: *Caldera, The Musical: The West meets its "Waterloo"!*

CALIFORNIA

Brian Hinds, an amateur herpetologist, was tooling around the San Joaquin Desert back in 2020 when he found an unusual yellow scorpion in a pile of debris. *SFGate* reported that he posted a photo to the iNaturalist app, but only recently was it determined that it's an entirely new species, *Paruroctonus tulare*. (Better not say that while waving your magic wand.) Not only did Hinds discover a previously undocumented species, he also likely prevented it from becoming extinct. Lauren Esposito, the California Academy of Sciences' curator of arachnology, thought it was only a matter of time before the scorpions' den would have been bulldozed over, and the species could have disappeared before ever being identified. While this is clearly a triumph for scorpion aficionados, members of the arachnophobe community may find themselves asking: Do we really need yet another terrifying critter to worry about?

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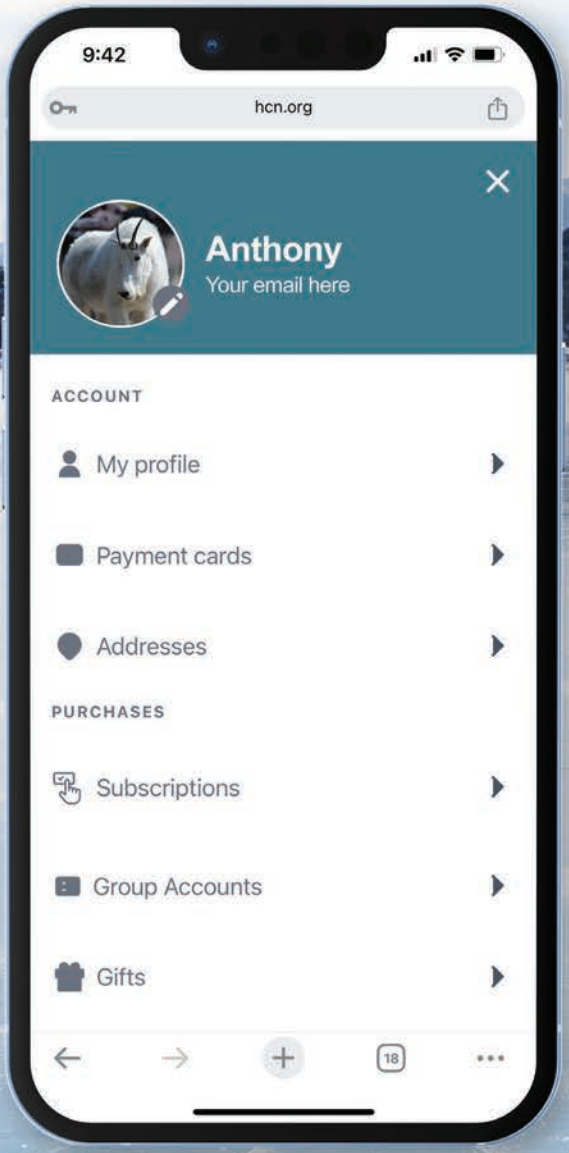

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#IAM THE WEST

NAELYN PIKE (SHE/HER)
(CHIRICAHUA/SAN CARLOS APACHE)
San Carlos Apache Tribe executive assistant, Apache Stronghold member
San Carlos, Arizona

Native people are often viewed as people of the past, not of the present or future, but Oak Flat tells our true story. The Apache lived in Oak Flat freely: We were born here, we fought here, we ate from the food it provided, we drank from its springs, we used its medicine and we're buried here. We have been here and are still here. When gold, silver and copper were found here in the 1800s, our people were targeted and forced onto Hell's Forty Acres — the San Carlos Apache Indian Reservation. Mining is an act of killing the land. When mining companies like Resolution Copper kill places like Oak Flat, they kill us, by taking away both our way of life and spiritual connection to the land — and that is the worst way to die. That is not what we want. We want to stay connected; we want to live here freely as our ancestors did.

Jakob Barlow / HCN

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