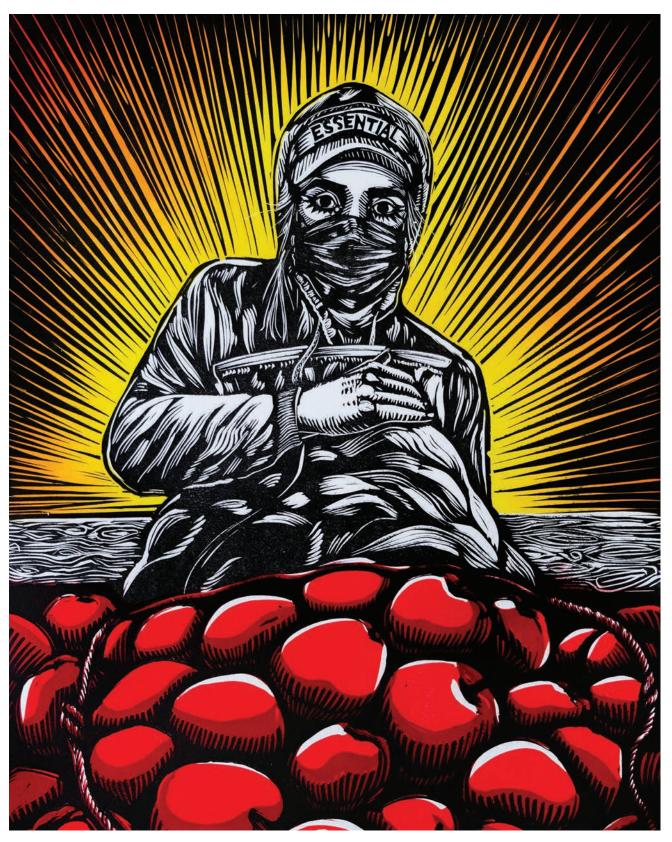
High Country News



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A farmworker-led movement to build a better future

Up close and personal with the Pacific lamprey

The mining boom that electric vehicles fueled

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A Pacific lamprey photographed at the Yakama Fisheries in January. Paul Wilson / HCN

Know the West.

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EDITOR'S NOTE



An open-hearted journey

I WANT TO TALK TO YOU about the land. About how it inspires me, grounds me, makes me feel alive. About how passionately I feel that landscapes and ecosystems and species should be protected. But we can't talk about the land without also talking about human desires and behavior, equity and justice. Because people — each and every one of us — have both direct and indirect effects on the health of the land, and we are all interdependent with the land. This makes it difficult to cover the West without talking about housing, labor, transportation or voting rights — issues that have everything to do with the fate of the land, water and wildlife. Readers of this magazine know that it would be irresponsible to tell the story of the West any other way.

The roots of High Country News reach back to a time when there was a shortage of good reporting on the environmental issues affecting the West. And while that condition persists, the concept of what is considered an environmental issue — and of environmentalism itself — has changed considerably, and in important ways. Narratives from marginalized communities have begun to be integrated, and the focus has started to shift toward intersectionality. HCN has proudly been part of this evolution, and we will continue to bend our coverage toward fairness and equity. We are committed to telling conservation stories that consider, and often center, the interests and yearnings of people from differing cultural or economic backgrounds, and to thinking critically about which writers and artists we tap to tell those stories. With open hearts can come great change.

Long ago, HCN made a commitment to tackling the thorniest issues affecting the region. And this may be the thorniest of all: how to preserve what we love about the West in a way that is fair to all cultures and stakeholders and that doesn't leave anyone behind. This includes how much we pay for groceries and who harvests our food. It includes trail systems and highway systems, flight paths and migration paths. It includes Indigenous sovereign nations and multigenerational ranching families and the immigrants who are arriving as you read this. HCN will continue to represent the ever-changing West, to celebrate biodiversity and human diversity, alpine peaks and urban creeks — because it has never been more true that we are all in this together.

For now, I'm pleased to introduce some new voices: Laureli Ivanoff, whose column "The Seasons of Unalaqliq" debuts in this issue (more regular columnists coming soon), and Tiffany Midge, who takes her place as the new curator and scribe of HCN's beloved "Heard Around the West." Thank you for being with us on this curious and open-hearted journey.

Jennifer Sahn, editor-in-chief

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As farmworkers bear the brunt of climate change, activists in Washington chart a new path for climate justice. BY SARAH SAX | PHOTOS BY JOVELLE TAMAYO

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Artwork created by farmworkers and their communities paints an authentic picture of farm labor in Washington, countering a system that views these workers as invisible and disposable.

TEXT COMPILED BY SARAH SAX

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Christie Tirado, *Trabajadora Esencial,* linocut print, 2020. Courtesy of the artist.

Narsiso Martinez, Super Fresh (above), ink, gouache, charcoal and collage on cardboard produce boxes, 2020. Courtesy of the artist and Charlie James Gallery.

California condor chick Iniko, in the San Simeon, California, release pen just prior to her return to the wild in December (right). Greyson Poutas / Ventana Wildlife Society

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A California condor achieves pandemic stardom.

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LETTERS

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

WIND'S CHALLENGES

Your story on the proposed wind farm in Idaho provides an excellent case study on the environmental challenges of replacing much of our nation's energy infrastructure with renewables ("The fight over a windswept landscape," December 2021). While renewables are great at reducing emissions of greenhouse gases and other pollutants, they are not immune from numerous other environmental issues, and they are particularly challenged with issues like land use and viewscape.

Given the enormous amount of fossil-energy generation that must be replaced, it is unlikely that there is enough land that is both suitable for energy production and free from environmental impacts; difficult choices will have to be made. This discussion needs to be a national conversation, not a project-by-project one.

Neil Snyder Evergreen, Colorado

REMEMBER THE PAST

Citizens of the West would be well advised to remember the Hanford, Washington, nuclear waste products disaster ("No Easy Fix for our Nuclear Past," December 2018). Wind power and the rapid improvement in battery technology seem a far better match for the future

electrical needs of Wyoming and the West ("New nuclear," December 2021). One could employ a lot of workers to build wind farms for the cost of storing nuclear waste forever.

Robert Brayden Golden, Colorado

TECH WHO?

I enjoyed the detailed map and article highlighting inequity by county across the West ("The wealth abyss," December 2021). However, the use of the moniker "tech bro" is unnecessarily inflammatory. Does employing this negative connotation serve any useful purpose? Do women not also work at tech companies? Good empirical research on inequality in the West is needed, but dog whistles in its analysis are not.

Danny Zimny-Schmitt Denver, Colorado

Thanks for reporting on the massive transfer of wealth from working people to the 1%. As shown, this has been happening in earnest for the last 40 years. Unfortunately, the author attributes this using very passive language. Incredibly, no discussion of any agency in making these changes. I recommend reading the Powell memorandum as a starting point.

So, thanks for reporting on the class war, at least a little. But please

spend some time on who did what to get here. I think we would all find this illuminating.

Steve Kachur Pleasant Hill, California

Congratulations on this informative piece, particularly the excellent infographics by Luna Anna Archey — remarkably concise and convincing.

Dale E. Busse Goldendale, Washington

N-15 ISOTOPES

Your graphic about the Klamath was very informative ("What would a healthy Klamath River look like?" December 2021). I would like to point out a misconception regarding the N-15 isotope. The different isotopes of nitrogen do not have any impact on healthy forest growth; all isotopes of nitrogen can be used for growth. The N-15 isotope can be used to determine the amount of nitrogen that comes from marine sources, where it is plentiful, versus land sources where it is not found in high abundance. A forest with increased levels of N-15 indicates the possibility that much of the nitrogen is being transported into the forest from a marine source. This can be a bit confusing, and I would hate to see readers think that they need to increase the amount of N-15 in their diets to have proper growth.

Scott R. Lefler, Ph.D. School of Molecular Sciences Arizona State University Tempe, Arizona

BEAUTIFUL AND INFORMATIVE

I just had to reach out with my compliments for the exceptionally interesting and presented article, "The nuance and beauty of the West in 2021," (hcn.org, 1/5/22). I really did enjoy the prompt to pause this Sunday morning and journey with you through the highlights of *HCN's* 2021 reportage.

Each month was presented beautifully and the hyperlinks within, to further read about the highlights, were useful and welcoming portals. You have done a great job in honoring the work of *HCN's* writers, editors and photographers, and you have reminded me, the reader, of the importance of *High Country News'* work out there, to inform me and stoke my interest in this West, which I am a part of.

I love it and am all the more eager to further my engagement for 2022.

Magnolia Vahey Albuquerque, New Mexico

AN IMPORTANT DISTINCTION

In "What you can't see can hurt you" (November 2021), your story claims that "natural gas is far more climate-friendly than coal." This is poorly worded as there is nothing climate-friendly about burning fossil fuels. Natural gas is simply less climate-destructive, an important distinction.

Ryan Vanzo Homer, Alaska

MANCHIN'S MINING LAW

I am so pleased with the story you published about the latest attempt to update the mining law of 1872 ("Two Democrats kill chances of reforming outdated hardrock mining law," hcn.org, 11/18/21). I wasn't liking Joe Manchin much before I read it; now I'm ready to donate money to get rid of him!

Sally Newell Underwood, Washington

RURAL BROADBAND VS. SATELLITE

It's clear that large telecoms are using huge federal dollars every year for a fiber solution that is barely moving the needle on rural needs ("How to solve the ruralurban digital divide," hcn.org, 12/6/21). Starlink, on the other hand, offers a low-cost solution that appears to be a game changer for those in very rural locations. What's not clear is whether it can meet the pent-up demand for broadband to remote areas. This discussion is incomplete without commentary on the extent to which satellite can displace telecoms in very rural areas.

Dennis Lopach Missoula, Montana

CORRECTION

In the Community Pages of our January 2022 issue, we incorrectly identified a photo and quote from Douglas Brown as being from Douglas Jones. We apologize, Douglas!

REPORTAGE

Celebrity chick

A California condor achieves pandemic stardom.

BY JULIET GRABLE

ON DEC. 4, over 400 people logged on to Zoom to watch the Ventana Wildlife Society release three young California condors into the wilds of central California. The nonprofit frees captive-bred birds once a year, but this event was special: One of the condors, Iniko, had gained a flock of ardent fans during the pandemic.

The chat box buzzed. Viewers across the United States and from places as far-flung as Symi, Greece, and Auckland, New Zealand, typed greetings.

"Been looking forward to this all week! Woohoo!" wrote Mia Clapham.

"Just the thought of Iniko being released soon has already brought tears to my eyes," added Nancy Valente.

The event's host, wildlife biologist Joe Burnett, queued up a video that chronicled Iniko's dramatic story. "Today is the day we've all been waiting for," Burnett told viewers from his Zoom square. "It's the culmination of an emotional roller-coaster ride."

Iniko was born inside a redwood tree snag in the Big Sur Condor Sanctuary. Live-streaming cameras placed in and near her nest and hosted on explore.org allowed people to spy on her from the moment she hatched on April 25, 2020. When COVID-19 grounded its field tours, Ventana started hosting monthly "Condor Zoom-Chats" so that people could learn more about the endangered birds. Hundreds of suggestions for naming the chick poured in,

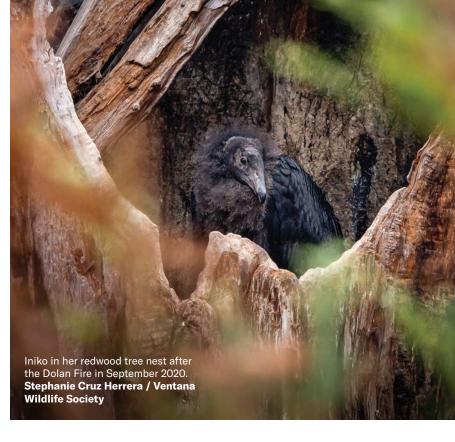
and in June, Burnett revealed the winner: Iniko, Nigerian for "born in troubled times."

Over the long, grim months of the pandemic, hundreds tuned in for updates. "We know that people are more likely to support something if they know and care about it," said Kelly Sorenson, executive director of the Ventana Wildlife Society. "The pandemic made us realize our reach is much better in a virtual world."

The sight of Iniko being nuzzled and fed by her parents, Redwood Queen and Kingpin, gave people a respite from anxiety and isolation. Then, on the night of Aug. 20, disaster struck the sanctuary when the Dolan Fire roared up a dry canyon straight toward several condor nests.

That evening, Spike Cutolo, a retired NYPD detective, was watching from her home in rural New Hampshire. She saw embers falling into the frame of Iniko's webcam. "I couldn't leave her. I cared enough about her that if she was going to leave this planet, she wasn't going to go alone." Cutolo could hear the fire crackling through her computer speakers as the agitated chick wildly flapped her wings. Then the camera feed went dark.

For days, no one knew whether Iniko had survived. Messages and donations poured in, as views on Ventana's Facebook page soared from 20,000 to over 360,000. Finally, a crew of field biologists hiked out to the redwood tree. Iniko was alive, but the fire had destroyed Ventana's research facilities and



killed 11 condors, including Iniko's father, Kingpin — a huge blow to the central California flock, which numbered just over 100 birds.

Iniko's supporters watched as the young bird thrived under her mother's care, but in October, a male condor named Ninja began harassing her. During one attack, Iniko tumbled out of her nest and sprained her foot. Ventana's staff rescued her, and she spent the next year at the Los Angeles Zoo, learning how to be a condor from captive-bred chicks and adults. In preparation for her release, she was brought to Ventana's condor sanctuary in San Simeon in the fall of 2021.

Iniko's trials seemed to echo the troughs and crests of the pandemic. "A lot of people connected with her, because, in a lot of ways, we were all struggling," Sorenson told me.

On the day of Iniko's release, back on a Zoom call, Burnett checked in with the field staff who were monitoring the birds at the sanctuary. "How're we looking?" he asked.

"Iniko's on the ground," wildlife biologist Danae Mouton replied. "We all have our money on her going out first." With fellow condors Dian Fossey and Rachel Carson perched above her, Iniko eyed the calf carcass that staff had placed just outside the pen.

Burnett started the countdown: "Three, two, one. ... This is it!"

Intern Carolyn Doyle yanked on a cable. The gate stuck momentarily, then rolled open. At first, the birds didn't budge. Then Iniko began pacing, coming within a few inches of the open gate.

"We're ALL on the edge of our seats!!!!!" Judy Heher wrote in the chat.

Another intern opened the pen's upper gate to encourage the birds. Iniko flew up to the perch next to Dian, who, without ceremony, launched out of the enclosure. Iniko leaped after her. The field staff cheered; someone clapped; the chat lit up with good wishes.

On the ground, there was a flurry of wings as the condors descended on the dead calf. Iniko emerged the victor, dining on the carcass as the others watched.

"So proud of dear Iniko!" wrote one viewer named Julia. "She's owning the free world and that carcass."

REPORTAGE

Gambling on a lark

A rogue state agency and a loophole in gambling law help a billionaire trample tribal sovereignty.

BY BRIAN OASTER AND THEO WHITCOMB



CHRIS MERCIER was studying to be a journalist in 1995 when his tribal nation, the Confederated Tribes of Grand Ronde, built Spirit Mountain Casino. Before then, the area between Portland and Eugene was sparsely populated, and the tribal government, which was funded by grants and timber sales, operated out of offices in single-wide trailers.

"I watched the profound impact it has had," said Mercier, now the vice chair of both the Grande Ronde Tribal Council and the Oregon Tribal Gaming Alliance. Using casino revenues, the government funded infrastructure and services for its members, including public housing, administrative buildings, a health-care clinic, police and security payments to

elders. "All of our wealth is shared throughout our community. It's been revolutionary out here, how it has changed the quality of life for our members."

But over the past year, Mercier has witnessed what seems like a slow-motion train wreck. An obscure state agency in charge of horse racing is shepherding something called a "racino" through the permitting process, basically creating the state's first private casino, 233 miles south of the Spirit Mountain Casino in Grants Pass, Oregon. By potentially permitting machines that blur the line between horse racing and slot-machine gambling, the Oregon Racing Commission has brought the project to the edge of completion. The ORC effectively developed

the plans behind closed doors, locking out both the public and tribal leaders and threatening an essential source of funding for tribes in Oregon.

The racino is owned by the state's newest billionaire, Travis Boersma, who co-founded the drive-through coffee chain Dutch Bros. In 2019, Boersma bought Grants Pass Downs, the horse-racing track in his southern Oregon hometown. The next year, he hired Randy Evers, who served as the ORC's director from 2007 to 2013, as the track's president.

Boersma's stated aim was to resuscitate Oregon's necrotic horse-racing industry. The state's oldest track, Portland Meadows, could not sustain overhead and shuttered early in 2019. When Boersma purchased Grants Pass Downs, he knew that horse racing alone wouldn't keep it afloat. So he decided to use a model that's gaining steam across the country: Tether his racetrack to a racino stocked with a brand-new generation of "historic horse-racing machines," or HHRs — flashy, color-saturated LED terminals built by slot machine companies. Portland Meadows already had 150 HHRs, but they were an older version that showed animations of historic races, with names and dates redacted so gamblers couldn't know the outcome. They weren't particularly popular or profitable.

Boersma's HHR machines have no visual indicators to connect them to horse racing. But the internal math they use is based on pari-mutuel wagering, so they legally qualify as horse-racing. They don't generate random numbers the way traditional slots do, even though they replicate the slot machine experience. This loophole could allow the proposed business — the Flying Lark — to tap into the casino market without legally being considered a casino. Boersma calls it an "entertainment venue," rather than a gambling destination.

Only tribally owned casinos are legal in the state; Oregonians voted against legalizing private casinos in 2010, and then again in 2012. But the ORC, an unelected commission of governor-appointed lawyers and veterinarians, was poised to greenlight Boersma's project anyway. The commission was flexing enormous power over the future of Oregon gaming without consulting tribes or considering the threat its decision posed to their economies.

IN A PIXELATED Zoom meeting in May 2021, the Oregon Racing Commission's current

Artist's rendering of the Flying Lark Entertainment Venue in Grants Pass, Oregon. **Courtesy of the Flying Lark/HBG Design** director, Jack McGrail, answered questions before the state's Legislative Commission on Indian Services. The meeting marked the first time the ORC made any effort to discuss the Flying Lark with tribal leaders. For an hour, the tribal leaders asked questions and expressed their concerns about the project, noting the lack of consultation from the agency, which acted without legislative or public input. McGrail was there to clear the air.

"I apologize if that outreach was not sufficient," McGrail told council members. "We perhaps underestimated the impacts of these initiatives on tribal interests. Moving forward, we will endeavor to make sure that the tribal interests are at least notified, considered and have a seat at the table."

Despite McGrail's pledge, however, nothing changed. Throughout the summer and early fall, tribes individually and collectively petitioned state legislators, the secretary of State and Gov. Kate Brown's office, with increasing urgency, to better supervise the ORC. They wanted the state to establish a joint committee on gambling to review state law in light of the new HHR technology. Such a review hadn't happened since 1996, back when DVDs and flip phones were exciting technological advances.

While the Oregon government sat on its hands, the tribes commissioned two studies, both released in September, focused on the state's gaming landscape. "The terms, 'historic racing machine' or 'historic horse racing machines' are misnomers," one study concluded. They didn't display old horse races, but mimicked traditional slot machines using pari-mutuel math.

The other study found that if racinos spread to the other tracks and betting sites, the tribes would lose up to \$31 million, jeopardizing their financial ability to govern themselves, and thus their sovereignty. But Mike Thiessen, the Flying Lark's president, told *High Country News* that the competition was healthy, downplaying the likely impact the machines would have. "Competition is always good," said Thiessen. "It should drive us to do our best."

Gaming tribes are the largest employers in many parts of rural Oregon, hiring both tribal citizens and non-Natives alike. One of the Flying Lark's ostensible *raisons d'être* was that it would create between 150 and 250 jobs, a paltry number by tribal standards. Mercier said that his tribe, the Confederated Tribes of Grand Ronde, employs 1,500 people, making it Polk County's largest employer. The Cow Creek Umpqua Indian Foundation, which draws its funds from the Seven Feathers Casino, less than an hour's drive north of the Flying Lark, has distributed

over \$20 million to nonprofits in surrounding counties since it began operation in 1998. These benefits, by design, extend beyond tribal citizens to include the greater community, funding everything from playgrounds to libraries.

Yet Boersma, and the ORC, had apparently made up their minds. In spring 2019, Boersma broke ground for the Flying Lark at Grants Pass Downs. He poured roughly \$50 million into the project and armed himself with everything he needed to get the commission's approval—including Evers and a new political action committee. *The Oregonian* called the venture "one of the great longshots in Oregon business history," and in July, a gushing *New York Times* column lauded it as "good ... for the community's soul."

Four months went by with little action from state officials, and the ORC appeared poised to grant the permits. So at the ORC's monthly meeting in October, the tribal leaders, having been denied adequate consultation, were forced to go before the ORC as Oregon citizens — not official government leaders — and deliver public comments:

"My appearance today isn't considered, or shouldn't be considered, appropriate government-to-government consultation," said Don Gentry, chairman of the Klamath Tribes. "Yet I've decided today to speak, because I think it's important for the public record to show that this agency and commission has not upheld its responsibility in the government-to-government relationship with all the tribes."

The tribes, Gentry said, had long requested consultation with the ORC. They didn't necessarily want to shut down the racino, but since it would impact tribal communities, they wanted the ORC to include them in the development process, as it was legally obliged to do. "We keep waiting," he said. "No action should be taken at this level while those consultations are taking place, and until all consultations are complete."

Alicia McAuley, the executive director of the Cow Creek Gaming and Regulatory Commission and treasurer of the Oregon Tribal Gaming Alliance, walked the ORC through the tribes' commissioned studies, describing the economic reality that the gaming tribes faced should the commission approve the project.

"The Flying Lark will not attract new gamblers. It will take from the lottery retailers and patrons of tribal gaming casinos," McAuley said in October. "Any jobs created will come at the expense of other jobs and ultimately other local businesses and they won't be new."

But Boersma's crew remained confident that the commission would grant the necessary permits. So confident, in fact, that the Flying Lark scheduled its grand opening for December 2021, despite not yet having a license for its HHR machines. It hired 150 employees and started promoting the venue. "(The ORC has) given indications of approval all along the way," Mike Walters, the Flying Lark's director of marketing, told *High Country News* in November. "But they're getting pressure from the Native American casinos and tribes about having competition, which they don't like, so they're raising a little bit of a ruckus, which we were expecting."

The state, however, finally took notice. On Oct. 29, three weeks after the ORC meeting, Secretary of State Shemia Fagan announced that her office would begin an audit of the ORC's processes beginning in November — an audit that, as of publication, is still ongoing. This derailed the Flying Lark's seamless path to a December opening, since the audit meant that the ORC had to delay its final ruling on the racino's machines. The Flying Lark, in turn, filed a lawsuit in late December against the ORC to force a decision. This was the last resort, Walters said: If the ORC votes no, the venture is finished. "The ORC's continued delay on holding a vote on the applications is unreasonable," the lawsuit read, alleging the indecision is causing harm to the community by leaving the venture in financial limbo.

Meanwhile, Boersma and his racinos are not the only ones stuck in limbo. Tribal leaders are still waiting for their demands to be met: legally mandated government-to-government consultation, a pause on the development, and a formal review of gaming law.

"The way the Oregon Racing Commission is proceeding is a violation of promises made to the tribes."

I pray, you pray ...

Tribes are helping Pacific lamprey, a species of concern, win hearts with their underdog status and creepy charm.

BY BRIAN OASTER | PHOTOS BY PAUL WILSON

PACIFIC LAMPREY are not endearing at first glance. The most striking feature of their almost featureless bodies is their soul-boring cobalt-blue eyes. But what you can never unsee is the "oral disc," a jawless, hook-toothed sucker mouth that seems perfect for gobbling space mercenaries into sand dunes. "They look like

scary-ass monsters," said Michael Belchik, senior water policy analyst for the Yurok Tribe and a former fish biologist. Ralph Lampman, a lamprey research biologist at Yakama Fisheries, compared lamprey to Yoda and said they have the wisdom of Jedi masters.

Lamprey hail from the infraphylum *Agnatha*, jawless fish with a spinal cord but no vertebrae — only a terrifying cartilage skeleton. Don't Google it. Like salmon, they're anadromous, growing up in freshwater before migrating out to sea. They return to spawn but lack site fidelity, meaning they don't return to their home spawning grounds. An adult lamprey in the Columbia River could have hatched

upstream in Russia or Japan. They can swim a thousand miles inland, even to landlocked Idaho, where they spawn and die, depositing marine-derived nutrients that grow Pacific conifer forests, including the mighty redwoods—a peer amongst the oldest living things on earth. "Forests and trees are made of fish," said Keith Parker, Yurok



Lamprey have been around longer than sturgeon and dinosaurs, even longer than trees. All trees.

Pacific lamprey, photographed here at Yakama Fisheries in January, are now on display for the public at a handful of locations in the Pacific Northwest.

tribal member and senior fisheries biologist with the Yurok Fisheries Department. If they come upon a waterfall, lamprey don't stop. Lamprey have sucker mouths. Lamprey climb. They inch up wet surfaces with a leap-and-latch shimmy that, when populations were high, left rocks blanketed in a wriggling mass.

While salmon get good publicity for being yummy, healthy and beautiful, their ugly cousins are the true superfood — 4.1 times as rich in omega-3 fatty oils (which boost baby brain development and could prevent psychopathology), and with over four times the calories of salmon, despite being smaller. Sea lions will swim past salmon for a chance to catch a lamprey. "It's pretty much the healthiest seafood in the world," said Lampman.

There's something about lamprey that hooks people, converting them into enthusiasts, much like cat ladies, if cats were creepy prehistoric fish. "Lamprey have a way of bringing people together," said Kelly Coates, a tribal member and Water and Environmental Resources Program manager with the Cow Creek Band of Umpqua Tribe of Indians, adding that they "sort of look like Bullwinkle" during their maturation phase. A few years ago, Coates and other tribal representatives helped the Oregon Zoo build a culturally specific lamprey exhibit — only the second place in the West to actually charge people to look at these creatures. (The first was the High Desert Museum in Bend, Oregon. A third exhibit opened at the Sequoia Park Zoo in Eureka, California, continuing a model of Native-led species ambassadorship.)

Lamprey have been around longer than sturgeon and dinosaurs, even longer than trees. All trees. They've survived five mass extinctions and haven't evolved since at least the Cretaceous Period, 66 million years ago. But these Devonian darlings may not

be long for the modern world. Dams, habitat degradation, extirpation and other colonial factors have reduced returning lamprey numbers in some basins from millions to what you can count on one hand. "This might be their extinction," Lampman said. "Our impact is more than 400 million years of impact combined. It's a wake-up call for us."

Tribal conservation of this keystone species has never stopped, and in recent decades organizations like the U.S. Fish and Wildlife Service have begun lending a hand. The non-Native public is finally taking an interest, but because lamprey have little value from a Western perspective, they remain critically understudied. There's still a lot about this underdog species that scientists don't know.

WHEN COATES began researching lamprey a decade ago, she was starting from almost nothing. Her team worked with the Oregon Department of Fish and Wildlife, the Bureau of Land Management, the U.S. Fish and Wildlife Service, U.S. Geological Survey, and U.S. Forest Service to gather foundational data. "We did local knowledge surveys. And then we also did some interviews with our tribal elders as well to find out where (lamprey) were, where they have been sighted in the past. And then we built a GIS database."

Meanwhile, on the eponymous Eel River in Northern California, a former agency fish biologist named Damon Goodman helped build a monitoring station in 2016 to count returning lamprey. The station doubles as a fish passage uniquely designed for lamprey to circumvent the Cape Horn Dam. Most fish passages are designed for salmon and cause maneuverability problems for lamprey. The station supplied lamprey to the Sequoia Park Zoo's new exhibit, which was built in partnership with the Wiyot Tribe, rotating the animals out



"We often think of these ape-like creatures as our ancient ancestors, but if you really trace our roots back, we probably looked eerily similar to a lamprey," said lamprey research biologist Ralph Lampman.

when they're ready to spawn and bringing in new ones that are done feeding, like they do at the Oregon Zoo.

Lampreys' unusual life cycle is in itself worthy of a Ridley Scott sci-fi thriller. Nocturnal and unseen. larval lamprey, called ammocoetes, burrow beneath your toes in your favorite swimming hole, filter feeding, aerating the water, recycling nutrients and feeding bigger fish. "They spend up to seven years in sediment filtering our water," Coates explained, "being a bit of an ecosystem engineer." Ammocoetes look like worms, not fish. In fact, ammocoetes and adult lamprey are so different, Western scientists classified them as different species until a few decades ago, when modern genetics advanced.

After two years, or maybe seven (nobody knows why, but it varies), ammocoetes metamorphosize, sprouting eyeballs, a kidney to handle seawater and that trademark sucker mouth. No longer filter feeders, they journey to the ocean to latch onto a host fish and live

their adult lives as parasites, traveling the Pacific by whale, drinking the host's fluids and keeping the wound fresh with their tiny rasping tongues. After a few years, a smell diverts their course: fresh babies.

Adult lamprey can detect the pheromones of upriver ammocoetes all the way down at the estuary. Intuiting that this new-baby smell indicates fertile spawning ground, they detach from their marine host and journey back into the freshwater world, fattened with marine nutrients. It's the last time they eat. Lamprey are weaker swimmers than salmon, but they can climb to upper tributaries even salmon can't reach.

"They came back by the millions" in precolonial days, said Parker. "Pacific lamprey were the largest biomass of anything in the river — not just fish, but of anything."

After spawning, decaying lamprey formed a smelly, oily film on the water that tribal elders remember. "People would leave the river until the film and the smell

went away," Parker said. Now, the mighty mass of anadromous fish is dwindling. "Over 90% of their numbers have been wiped out."

Lamprey tallied at Goodman's station dropped from over 11,000 in the mid-2010s to fewer than 100 in 2020. In 2021, Goodman only counted four. "We have no lampreys to collect for the exhibit" at Sequoia Park Zoo, he told me in an email. Later, on the phone, he said, "I wish I had more of an answer there for why."

MICHAEL BUCK, a Yakama Nation tribal member and a fisheries technician with the Columbia River Inter-Tribal Fish Commission, called lamprey's decline a "strategic extirpation," a deliberate destruction meant to damage Native communities and make room for salmon.

"One of the elders called it the logic of the uninformed," Buck said. "Kill the eels so there could be more salmon." (Although they're jawless fish, like humans' own ancient ancestors, many Natives

use the English word "eels" to refer to lamprey, whether in defiance of settler pedantry, or as a reminder that English and Latin are foreign here, or just because that's what elders called them. It's a bit like the buffalo/bison thing.)

Parker agreed. "The dams in particular have been really impactful," he said, adding that it's no coincidence lamprey are understudied. "There's no commercial value for Pacific lamprey on the West Coast," he said. "They're only important, really, to Native American tribes." He contrasted this with the salmon industry, which, according to the California Department of Fish and Wildlife, generates \$900 million per year in that state alone.

For Natives, lamprey are more than just food. They're important in ceremony and stories of natural law. "When the Creator was identifying food for Native people at the beginning of time, He marked them," said Wenix Red Elk, public outreach education specialist at

"If they can wipe out all of our food sources — like what they did with the buffalo — then they can wipe the Indian out on the West Coast."

the Confederated Tribes of the Umatilla Indian Reservation. The Creator's mark is a neat row of seven circular gills, corresponding to the Seven Drum religion and its seven sets of seven ceremonial songs.

Buck tells how Asúm — as Lamprey is called in Ichishkíin — was once a chief, even stronger and more beautiful than Chief Salmon, until he gambled away his belongings, his beauty, his stamina, even his bones, in a fitful stick game. But Asúm still swims with Chief Salmon, says Buck, and holds a place on the table of sacred foods, even if he's lower in the hierarchy than Salmon, or even than roots, chokecherries and huckleberries. "He still tries to show his strength, climbing the waterfalls with his mouth."

Red Elk describes a salmony flavor similar to smoked eel from sushi restaurants, but richer and more intense. "The best way to cook it is to barbecue it," she said. The tail gets crispy, and you can eat the whole thing — even the head. "It's my favorite." Slow roasting brings out the oils, which were traditionally used to treat earaches.

Coates said the oil is also good for teething babies, who sometimes chew on dried lamprey, or *Xtáan*, as lamprey are called in Takelma. "All the tribal elders said it's the oil in it that's going to help soothe the gums," she said. Lamprey oil is also used for hair and skin care.

Considering their ecological, ceremonial, mythological, culinary and medicinal importance, it's easy to see why Brother Eel has so much value to tribes — and provides a classic case of Western science needing to catch up with traditional ecological knowledge. Tribal conservation efforts include artificial propagation, habitat restoration and translocation — literally just trucking coolers full of lamprey past the dams and putting them on tribal lands a few hundred miles upstream. But it will take a much more cooperative effort to truly restore lamprey. "This is a Band-Aid until all the passage issues are improved," said Lampman.

Goodman says people should get over their horrified fixations on the oral disc. "I don't know when was the last time you looked inside your own mouth," he laughed. "It is not a pretty place."

"Salmon, steelhead, tuna, crab, they get tons of money thrown at them for research," Parker noted, while lamprey's destruction has been largely dismissed. "Nobody really gave a shit because if they can wipe out all of our food sources—it was like what they did with the buffalo—then they can wipe the Indian out on the West Coast."

Tribes have spent years petitioning the Fish and Wildlife Service to list Pacific lamprey as endangered. While those efforts have been unsuccessful, the fish do have some federal protection as a "tribal trust species." The Klamath is a hotspot for lamprey biodiversity,

home to numerous species of endemic brook and lake lamprey, which don't migrate out to sea. Two years ago, Parker discovered two new genotypes of Pacific lamprey. He eschewed Latin names and in his published, peer-reviewed paper dubbed them *key'ween* and *tewol* ("lamprey" and "ocean" in Yurok). In all future scientific literature, researchers will refer to them by these names.

"People are using the terms now, they're using Yurok words to describe these two new species," said Parker. "I was proud of that."

Regardless of what you call them — key'ween, lamprey, eels, or just "scary-ass monsters" — these peculiar animals are slithering their way into conservationists' hearts in a lovable kind of parasitic bio-horror way. Thanks to the hard work of tribal conservationists and their newfound groupies, lamprey could be on the verge of a renaissance instead of an extinction.

THE LATEST

Superfund waste halted

Backstory

For 40 years, the White Mesa Mill has processed uranium ore next to the Ute Mountain Ute Reservation in southeast Utah. Tribal members have fought for decades to close it, saying that the mill and its radioactive byproducts, stored in 40-acre tailings cells, are harmful to their health, groundwater and land. In November, *High Country News* reported on the mill's plans to import 2,000 drums of radioactive waste from Estonia ("The nation's last uranium mill plans to import Estonia's radioactive waste," November 2021).

Followup

On Dec. 2, 2021, the Environmental Protection Agency issued an "unacceptability notice" to the mill's owner, Energy Fuels Resources, that prohibits it from accepting waste from Superfund sites. An aerial photo of an uncovered tailings cell from the nonprofit EcoFlight, which supported the photography for the HCN story, accompanied by correspondence from the Ute Mountain Ute tribe, led to the order, which called the violation "egregious" and warned that the uncovered material could be emitting approximately 10 times more radon than a covered cell. —Jessica Douglas

Locked inside the U.S. water regime

Phoebe Suina on Rio Grande water, the rights of pueblo nations and holistic solutions to man-made disasters.

BY KALEN GOODLUCK

NEW MEXICO'S watermanagement agencies are having trouble keeping their rivers wet, and the problem will only get worse, "first in time, first in right" doctrine, according to a 50-year climate change and water study that was completed last year. So the agencies have begun planning for a future of dwindling water supplies in the San Juan and Rio Grande basins. For tribal nations, the big question is:

Will they finally have input in water management decisions?

Under Western water law's sovereign tribal and pueblo nations are entitled to the most senior rights on the region's waterways. Yet the U.S. water regime has long locked tribal nations out of the federal, state and local water-planning and decision-making process. Over the

past century and a half, federal, state and local agencies have dominated planning on New Mexico's largest river, the Rio Grande, fracturing it with man-made reservoirs and diverting it to irrigate farms and lawns and golf courses. They have over-allocated it to such an extent that they now must import water from neighboring basins just to keep the river flowing.

"It's a system that we developed where we didn't account for the needs of our Native American people who have lived here since time immemorial," said Grace

Phoebe Suina of the Pueblos of San Felipe and Cochiti stands on the shore of Cochiti Lake, which feeds into the Middle Rio Grande Valley. Kalen Goodluck/HCN



Haggerty, endangered species program supervisor for the Interstate Stream Commission, speaking in a July 2021 New Mexico Water Data video.

It can take years, sometimes decades, for tribal nations to navigate the legal maze of negotiating their rights within the massive tangle of other users staking claims. While the northern pueblos have secured water rights through three settlement agreements, most others have not. A majority of tribes, including the six Middle Rio Grande pueblos, have unresolved water claims that are moving at a glacial speed through New Mexico courts. There are a dozen active water rights adjudications, involving 18 tribal and pueblo nations, with the oldest one filed in 1966.

The state has acknowledged how inconvenient the water settlement negotiations are and has sought ways to speed up the process in recent years, but the system remains imbalanced. State water managers, meanwhile, quickly carve up water among municipalities, industry and private users instead of treating tribal and pueblo nations as partners.

High Country News sat down with Phoebe Suina, a hydrologist from the Pueblos of San Felipe and Cochiti, to talk about water and Indigenous knowledge. Suina talked about having meaningful engagement with tribal leaders in water planning and starting her own consulting company after a catastrophic wildfire.

This interview has been edited for length and clarity.

Can you tell me about your company, High Water Mark, and how you work with pueblo communities?

In 2013, my colleague Ryan Weiss and I started a small company called High Water Mark. Around that time, we were working for another, larger environmental consulting firm trying to help tribal communities, in particular the Pueblo of Cochiti after the Las Conchas wildfire. Cochiti Pueblo

and the village were severely compromised by flooding in 2011 and 2012 and needed flood mitigation infrastructure in the main Jemez watershed.

After you have a wildfire in a mountainous area, if you get a moderate or severe burn in a watershed, it's a catastrophic condition and impact to a watershed. The land will not absorb water like it normally could during a normal rain. It becomes hydrophobic, meaning the sand gets so hot during a wildfire — actually becoming similar to glass— (that) raindrops will hit and just immediately run off and can bring everything along, like an avalanche.

I was faced with a decision to leave Cochiti Pueblo to spearhead the company's federal contract, and I didn't see myself doing that. However, I realized that I had a certain experience and, some will call it, expertise as a hydrologist and navigating federal funding, navigating compliance, and navigating the real threat that post-wildfire flooding had on the community. So, in a matter of days, we jumped ship and started High Water Mark.

What do you think watermanagement agencies miss when they don't include tribal nations when stewarding our watersheds?

I really feel like Indigenous peoples still have that knowledge, that lived experience of being connected to natural resources, like water, that maybe modernization has separated from being an everyday connection. As an example, how many people out of the billions on this earth can say that they've drank right from the earth, not from a faucet, not the water bottle? The largest portion are probably Indigenous peoples.

The current system is based on assumptions from back in the early-1900s with their interstate stream compacts and the other water agreements that didn't have the breadth of understanding or the expertise or the knowledge or wisdom of Indigenous peoples at the table to help the decision-makers create a framework. So if it was deficient in that, how can it be a sustainable system, a sustainable framework, a sustainable way to go forward?

In this state of New Mexico, we have a term called "prior and paramount water rights." Those that have prior and paramount water rights were not at the table in the early 1900s, when agreements were signed and were decided.

There's an essence of being — having that direct connection to natural resources, but also how that connection is inherent culturally. To not take it for granted. And so when the tribal leaders and the state engineers and non-tribal governments come together, we tend to create that separation during these water discussions. We say, "OK, here's a piece of paper

and this identifies how many water rights our pueblo people have, as mothers, as daughters, sisters and all those that have gone before us." I worry that we are veering dangerously from that perspective and are taking water for granted.

This reminds me of something Grace Haggerty of the Interstate Stream Commission said in a video explaining New Mexico's 50-year plan. Speaking as someone who is in such a high position, she said that the system that operates the Rio Grande - that it's a system the U.S. developed that didn't account for the needs of Native American people who have lived here since time immemorial. What you make of that?

I appreciate her acknowledging that. People have reached out to me and asked about engaging tribes in these water conversations, and I encourage that. And I wholeheartedly hope that that continues. But let's now follow up with action. How do we actually put those words into action? And how do we wholeheartedly incorporate the Indigenous wisdom and expertise in plans and laws and policies in how we track water, how we manage water, how we steward water? That will tell me if these are just words, or if there is real sentiment and understanding behind those words. **

"It can take years, sometimes decades, for tribal nations to navigate the legal maze of negotiating their rights within the massive tangle of other users staking claims."

Electric vehicles drive up demand for 'green metals'

The need for energy-transition metals breathes life into new mines in the West.

BY JONATHAN THOMPSON | ILLUSTRATIONS BY EMILY POOLE

IN DECEMBER 2021, President Joe Biden signed an executive order requiring the 600,000-vehicle federal fleet to shift to zero-emissions by 2035 as part of an effort to leverage government buying power to "catalyze America's clean energy economy." The massive federal purchase is meant to help manufacturers move away from internal combustion engines and toward electric vehicle production.

If Biden has his way, half of the 17 million cars and trucks sold in the United States in 2030 will be electric. And even if his order is overturned by a later administration, the International Energy Agency predicts that market-driven demand will lead to similar numbers of new electric vehicles on the road, substantially decreasing tailpipe emissions, urban pollution and overall greenhouse gas emissions — as long as fossil fuels don't dominate the grids charging the cars.

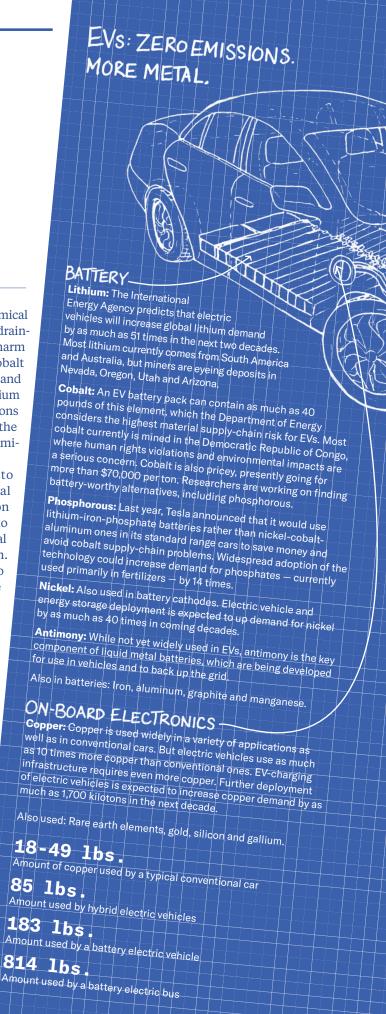
But it will also substantially increase the demand for the so-called energy transition minerals that go into electric vehicles, their batteries and the charging infrastructure — lithium, cobalt, copper, nickel and rare earth elements. Currently, these minerals are largely mined outside of the U.S., in China, the Democratic Republic of Congo, Indonesia and so on. But with the expected electric vehicle-manufacturing surge on its way, officials from both the auto and mining industries are calling on the federal government to streamline mine permitting in order to bring the supply chain closer to home. The projected demand and the rise in metal prices are breathing new life into Western copper mines and spurring dozens of proposals for new mines from Wyoming to Oregon and Nevada to Arizona.

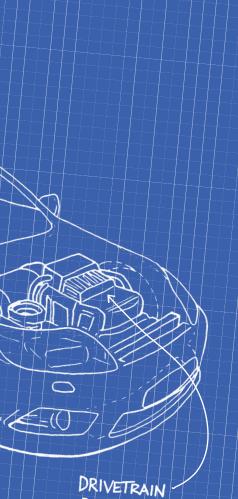
These minerals, which are also used in wind turbines and solar panels, are sometimes called "green rocks." But more often than not, their extraction is anything but green. Copper ore is gouged from vast open pits, visible from space as intricate scars on the landscape. All metal

mining tends to facilitate a chemical reaction that causes acid mine drainage, which can sully rivers and harm fish and other aquatic life. Cobalt mining can release radioactive and carcinogenic particles, while lithium extraction sucks billions of gallons of water from the ground and the wastewater disposal can contaminate drinking water aquifers.

Efforts are underway to minimize the environmental impacts. At California's Salton Sea, companies are hoping to tap wastewater from geothermal power production for lithium. Global mining giant Rio Tinto is extracting lithium from waste at its gaping boron mine in California's Mojave Desert; if the pilot project proves feasible, it could produce lithium without the need for new mining. Innovators are working on non-lithium batteries, and in Nevada one of Tesla's founders has devoted millions of dollars to develop ways to recycle electric vehicle batteries. **

Infographic Design: Luna Anna Archey Sources: U.S. Geological Survey, Ucore Rare Metals Inc., Idaho Mountain Express, Jervois Global, Perpetua Resources, Los Angeles Times, Energy Fuels, S&P Global, Bureau of Land Management, Earthworks, International Energy Agency, Atlantic Council Global Energy Center, Hudbay, Environmental Science & Technology, Pew Research Center.





Rare earth elements: Seventeen metallic elements, abundant in the Earth's crust but not necessarily in mineable concentrations, fall into this category, including neodymium and praseodymium, which are used to make the magnets that propel electric vehicle axles. Most of the rare earths used in the U.S. come from China, but deposits are scattered across Wyoming, New Mexico, Colorado and California, home to the nation's only active rare earth mine.

1.1 million

Number of all-electric vehicles registered in the U.S. in 2020

8.1 million

Projected number of electric vehicles in the U.S. in 2030 under the International Energy Agency's Sustainable Development Scenario

4.4 million

Projected annual sales of electric vehicles in the U.S. in 2030 under the IEA's Sustainable Development Scenario

MORE MINING.

ANTIMONY

Idaho: Perpetua Resources plans to construct an open-pit gold and antimony mine in the defunct Stibnite mining district east of McCall. Historic mining in the area ravaged the landscape and degraded water quality, harming the salmon on which the Nez Perce people depend. Tribal members fear the new mine will bring its own problems. Perpetua says it plans to restore the river and improve water quality.

Salmon-Challis National Forest, Idaho: Australia-based Jervois Global has begun work on the nation's only active underground cobalt mine just outside the Frank Church Wilderness. The Idaho Conservation League dropped its opposition years ago, after the developers agreed to treat the water in perpetuity and store waste securely in order to protect down-stream water quality.

LITHIUM

Thacker Pass, Nevada: Proposed by Canada-based Lithium Americas, this open-pit mine would target one of the nation's largest lithium deposits. The Reno-Sparks Indian Colony and Northern Paiute group Atsa koodakuh wyh Nuwu (People of Red Mountain) oppose the project, which is on tribal homelands and was the site of two massacres of Indigenous people in the 1800s. The project would use about 1.7 billion gallons of water per year.

Salton Sea, California: Australia-based Controlled Thermal Resources - with backing from General Motors - is drilling deep under the Salton Sea to produce geothermal energy from superheated water. The company plans to tap the wastewater for lithium.

Boron, California: Mining giant Rio Tinto is extracting lithium from waste rock at its huge boron mine in the California desert. It hopes to achieve commercial production levels this year.

NICKEL

Oregon: Although there are no active proposals to mine nickel in the West, deposits are scattered across the region. In the 1980s, southern Oregon's Nickel Mountain Mine was the nation's only combined nickel mine and smelter, but it shut down due to falling prices.

COPPER

Santa Rita Mountains, Arizona: Canada-based Hudbay hopes to capitalize on the projected rise in copper demand with its proposed Rosemont open-pit mine south of Tucson. Hudbay's website says that "the copper mined at Rosemont will support a cleaner and more interconnected economy." The proposal has hit regulatory and legal obstacles in recent months, and its fate remains uncertain.

RARE EARTH ELEMENTS

Mountain Pass, California: The nation's only operating rare earths mine is in the Clark Mountains near the Nevada border. During the 1980s and '90s, the mine was plagued by pipeline ruptures, hazardous waste spills and other environmental problems.

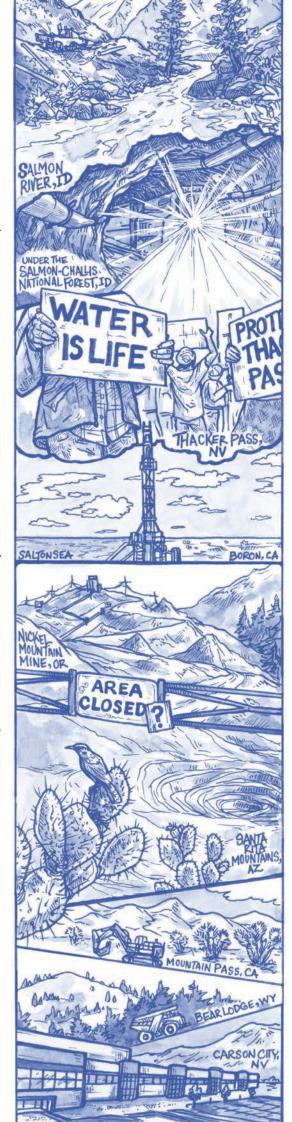
Bokan Mountain, Alaska: UCore Rare Metals Alaska is slowly working toward developing a rare earth mine in southeast Alaska on Prince of Wales Island.

Bear Lodge Mountain, Wyoming: After commencing exploratory drilling for rare earth metals at this northeast Wyoming site near Sundance, Rare Element Resources suspended its permit application with the U.S. Forest Service in 2016, citing low metal prices and lack of funding.

White Mesa Mill, Utah: The only operating uranium mill in the U.S., located in southeast Utah, has been retooled to also process rare earth elements.

RECYCLING

Carson City, Nevada: A study last year found that recycled retired batteries could supply more than half of the global demand for cobalt, lithium, manganese and nickel by 2040, thereby reducing the need for new mines. Nevada-based Redwood Materials, led by Tesla co-founder JB Straubel, says it can recover more than 95% of the critical minerals from recycled batteries. The company recently announced that it will produce recycled copper foils for Panasonic, for use in battery anodes manufactured at the Tesla Gigafactory in Sparks, Nevada.







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"It is indeed my honor and privilege to have found such high-quality journalism to be a voice for the precious, grandly historic, and invaluable Western portions of these great United States, reminding us that we all need each other to survive and thrive."

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HCN COMMUNITY

A community space for far-flung friends

DEAR FRIENDS: High Country News has always had a special relationship with its readers, dating back to the days when our founder, Tom Bell, ran out of money and his small but stalwart group of subscribers spontaneously pitched in to save the publication. That sense of personal investment in HCN grew into a familiar and warm exchange between those of us at the home office — whether in Lander, Wyoming (Tom's hometown), or in Paonia, Colorado (where the magazine has been based since 1983) — and our far-flung community of readers across the West and beyond.

For many years, these

pages featured photos of subscribers who stopped by our offices, recaps of our latest HCN potlucks, tales from the road and encounters with readers in Western coffee shops and on hiking trails.

But two things have happened in the past few years that have changed the way we connect. The first is the pandemic, which has kept us hunkered down, unable to hold gatherings around the West or welcome readers into the Paonia office. The second is that HCN itself has changed: While roughly a third of our staff

still live and work on Colorado's Western Slope, only a handful still come to the Paonia

office on an average day. The rest

of us are scattered

across the region,

from Tucson, Arizona, to Moscow, Idaho, and from Seattle down to Santa Fe.

Ed Marston, one of my predecessors and mentors, liked to say that being based in Paonia was *HCN*'s greatest strength — it kept us firmly rooted in a particular rural Western experience and gave a unique authority to our writing. But this new, dispersed arrangement makes a lot of sense for an organization trying to cover an almost 2 million-square-mile beat. We now have tendrils working their way into even more communities across the West.

This means, however, that like many organizations we're having to find new ways to stay connected. The community pages what you're reading now — will be part of that. Starting with this issue, the format of this section will begin to shift as we look for fresh opportunities to include your voices and experiences in HCN. My hope is that together we can discover and nourish an easy exchange, the light and lively conversation of old friends.

It won't be the same as visiting us in our old, ink-stained hub of desktop computers and messy light tables surrounded by mountains and mesas in western Colorado. But when the pandemic abates, we'll start gathering in person again, too. With so many of us spread

> across the West these days, there's a good chance we're closer to you now than ever before. -Greg Hanscom, executive director & publisher

> > HCN's staff is now scattered from Paonia to Portland, and from Pima County to the Idaho Panhandle. **Abbey Andersen / HCN**

We want to hear from you!

How can High Country News foster community today? Live-streamed interviews with authors and experts, community happy hours on Zoom, a monthly book club or a public-lands challenge (whatever that might be), get-togethers with local HCN "chapters" or a blazing bacchanal in the Black Rock Desert every summer (oh, right, that's taken) ... How would you like to connect with us and your fellow HCN readers?

Dream big! Send us your ideas at dearfriends@hcn.org and watch this space in future issues. We'll share some of the great ideas that come in and continue our conversation about the big, beautiful region we call home.



Narsiso Martinez, In the Fresh, ink, gouache and charcoal on found produce box, 2020. See page 29 for "Visible Hands," a portfolio of paintings, prints and artwork depicting the experiences of Latino farmworker communities in Washington's Yakima and Skagit valleys. Courtesy of the artist and Charlie James Gallery.



SOWING CHANGE

As farmworkers bear the brunt of climate change, activists in Washington chart a new path for climate justice.

By Sarah Sax | Photos by Jovelle Tamayo

VICTORIA RUDDY PACED in front of a pickup truck in the parking lot of a Bi-Mart discount store in Sunnyside, a farming town in the Yakima Valley, a vast semi-arid desert just east of the Cascades and the heart of Washington's agricultural industry. It was barely 8 a.m., and the temperature was already in the 80s. Heat radiated off dirty concrete, mixing with gritty wildfire smoke to form an oppressive haze. About two dozen students, farmworkers and United Farm Workers union staff stood nearby, loading gear into the truck. It was Aug. 12, 2021, and the second major record-shattering heat wave of the year had just struck the Pacific Northwest.

Over the next few days, temperatures crept into the triple digits. In Oregon, emergency rules to protect farmworkers go into effect when the heat index reaches 90 degrees Fahrenheit. In California, additional rules are triggered at 95 degrees. But in Washington, which is second only to California in producing labor-intensive crops like apples, asparagus, hops and berries, the mercury has to hit 100 before employers are required to provide shade or guarantee rest breaks. In an industry notorious for not complying with labor standards and workers' rights statutes, Ruddy, the UFW's regional director for the Pacific Northwest, was skeptical that those rules would be enforced. So she and the others had organized a

heat caravan: They would visit farms around Sunnyside to hand out water, Gatorade, KN95 masks and information on avoiding heat-related illnesses.

Before they left, everyone gathered around the truck. It was now 85 degrees, and the ice in a large blue bucket in the back of the pickup had already started to melt. Ruddy looked out at the anxious, excited crowd, and read three names from a list.

"Ricardo Sotelo," Ruddy said, naming a farmworker who died picking blueberries in Washington on June 30, 2015, in 107-degree heat. "Presente," the crowd responded, their voices muffled by their face masks.

"Sebastian Francisco Perez," she said, speaking more forcefully now, referring to a farmworker who died in Oregon on June 26, the day after his 38th birthday, while moving irrigation lines during the previous heat wave. "Presente," the crowd called back, louder, angrier.

"Florencio Gueta Vargas," Ruddy yelled, her voice firm and clear.

"*Presente!*" the crowd shouted, their calls reaching a crescendo.

Gueta Vargas, a married father of six, had died only two weeks earlier outside the nearby city of Toppenish, under the kind of conditions climate scientists predict will become more common and extreme. He woke around 3:30 a.m. as usual, made coffee with cinnamon, pocketed the fresh tortillas his wife had made him, and drove to his job at Virgil Gamache Farms. He tended rows of hops, a crop notorious among farmworkers for being hard to work in high temperatures.

Hops are fast-growing leafy vines with pinecone-shaped buds, which contain a resin that gives beer its distinctive hazy citrus flavor. It's a lucrative crop in the beer-obsessed Northwest; the Yakima Valley alone produces around three-quarters of the nation's hops. But the plants also trap the sun's warmth and humidity, raising the heat index by several degrees. There's scant shade during the hottest part of the day, when the rows turn into sticky, humid tunnels of heat.

On July 29 — when almost all of eastern Washington was under a National Weather Service heat advisory — Gueta Vargas collapsed toward the end of his shift and died. The official cause was atherosclerotic disease, or problems with his arteries, but the coroner noted that environmental conditions were a contributing factor; it was around 101 degrees when he died.

GUETA VARGAS' BACKGROUND resembles that of many of the roughly 200,000 farmworkers in Washington. He grew up on his family's

ranch outside of Zacatecas, Mexico, before leaving for the United States. He loved growing food; at the home he recently purchased in Wapato, Washington, he grew cabbage, cucumbers and spicy peppers next to the cherry tree his daughters had given him for Father's Day.

Most of the food that people in the U.S. consume, from the apples and pears in our fruit baskets to the milk and eggs in our fridges, has likely been touched by someone like Gueta Vargas. The 2.5 million farmworkers in the U.S. form the backbone of the food system, but they also comprise one of the nation's most disenfranchised groups of workers.

Farmworkers have historically been denied labor rights, including overtime, paid breaks, health care and hazard pay. In the 1930s, policymakers drafting federal legislation on unionization and worker protections left out two crucial groups: agricultural workers and domestic workers. At the time, both were predominantly African American. By the mid-20th century, most migrant farmworkers in the West were Hispanic, in part due to the Bracero Program, a federal policy created during World War II that allowed millions of Mexicans to work in the U.S. on short-term contracts. Today, most farmworkers are migrants from Mexico or Central America. They're still largely excluded from work-based injury or safety standards, and most lack basic protections, including workers' compensation, health insurance and disability insurance.

Now, they face new hazards. Farmworkers are already around 35 times more likely to die from heat than other workers, and studies predict that climate change will almost double the number of dangerously hot workdays by 2050. And it's not just the heat: Climate change is also driving bigger and more frequent wildfires, which release toxic fumes and fine particles that can aggravate asthma and respiratory illnesses.

Climate change will impact agriculture more than most industries, according to the United Nations. Extreme weather is already destroying crops and disrupting supply chains, and drought and water shortages will become increasingly common. Overall, climate change is expected to make food less available and more costly.

Industrial agriculture is also one of the main drivers of climate change, due to deforestation, shipping emissions and petroleum-based agrochemicals. According to some estimates, the food system is responsible for as much as 40% of global emissions. It does one thing really well: produce cheap food. But its long-term impacts are less palatable. Every dollar spent on food in

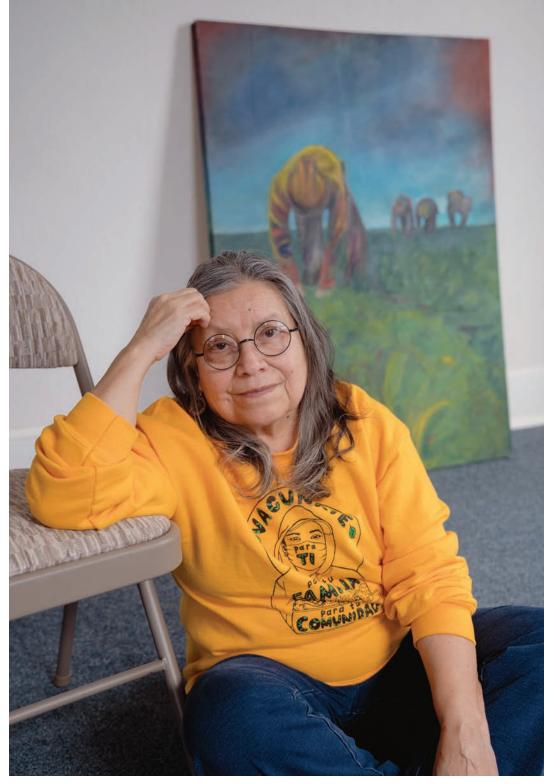
the U.S. costs \$2 in negative impacts on public health and the environment, according to a National Academy of Medicine study.

"In order for the industry to keep up the profits that they are making, it means that the exploitation of the workers is going to increase and so is exploitation of the soil," said Rosalinda Guillén, a farmworker advocate and the founder of Community-to-Community Development (C2C), a grassroots organization dedicated to food, economic and environmental justice led by women of color. "There is a way to make it better," she said. But time is running out: A landmark 2019 report by the Intergovernmental Panel on Climate Change showed that massive changes in the global food system are necessary to avert catastrophe and adapt to climate change.

One way to enact that change is through climate justice: acknowledging the structural inequities farmworkers face and pushing for changes that benefit both laborers and the environment, with workers at the helm of decision making. In Washington, farmworkers, activists and labor organizers like Guillén are advocating for better oversight and worker protections and finding ways to involve farmworkers in state policy solutions.

Perhaps the most visible sign of change is the creation of Familias Unidas por la Justicia, the only independent farmworkers' union in Washington, and Tierra y Libertad, a farmworker-owned cooperative. But the transition from farmworker to farmer has not been easy. The cooperative has had to face the realities of growing and selling food in a system designed to keep prices low, in part by exploiting the labor force. At the same time, it has had to contend with widespread racism and mistrust. Meanwhile, the pandemic and extreme weather have created yet more obstacles — even as they've made the need for systemic change that much clearer.

ON FEB. 10, 2020, around a hundred farmworkers packed into a hearing room at the Washington State Supreme Court building. It was standing room only, filled with legislators and the general public. The farmworkers shuffled nervously, both elated and proud at the chance to testify in Washington's highest seat of justice, on topics ranging from pesticide exposure to sexual harassment to the effects of climate change. It was Latino Legislative Day, and the Seventh Annual Farmworkers Tribunal was just beginning. Two state judges were joined by three women, who would act as community judges; together, they would issue recommendations to state officials and the wider community based on the testimony they heard. Guillén,



They don't see us as human beings or equitable members of the community. We're just another tool, like the tractors or the pesticides.

Rosalinda Guillén, a farmworker advocate, community organizer and founder of Community-to-Community Development, with one of her brother Miguel's paintings at the C2C office in Bellingham, Washington.

who founded the tribunals in 2014, acted as moderator.

She was no stranger to organizing. The daughter of farmworkers, she dropped out of school in 10th grade and followed the farmworker labor-camp circuit for almost a decade, then worked at a bank before joining the National Rainbow Coalition, a prominent multiracial political organization, in the mid-'80s. Through the coalition, she helped lead union organizing efforts in the 1990s, after farmworkers from Washington's largest winery, Chateau Ste. Michelle, went on strike, protesting working conditions and a lack of protection from pesticides that were making them and their children sick. After eight years of boycotts and negotiations, the farmworkers won their first union contract. Guillén went on to work for the United Farm Workers in California, first as an organizer and then as a lobbyist.

She can look back now and laugh at memories of butting heads with industry lobbyists, but her time in Sacramento and Washington, D.C., revealed a disturbing truth about corporate agriculture. "They have their people in the halls of Congress fighting for everything the agricultural industry needs," Guillén said. "And they don't see us as human beings or equitable members of the community. We're just another tool, like the tractors or the pesticides."

Guillén knew better: Farmworkers are key to imagining a new future for agriculture. But before that future can be realized, the injustices of the past and present must be addressed. So Guillén started the annual tribunals to give farmworkers a way to testify about the conditions they face. It was inspired by the Peoples' Tribunals, forums set up by grassroots and civil society organizations to adjudicate human rights abuses, famously used in Latin America to expose the crimes committed by military regimes.

Testimony given at Washington's tribunal has already sparked a number of policy changes in the state, from an overtime law that was passed last year to the formation of a committee to regulate and monitor the rights of temporary agricultural workers.

Guillén's views have been influenced by activists around the world. Along with two other people who were also at the 2020 tribunal — Ramón Torres and Edgar Franks — Guillén has been critical to the formation of the farmworkers' union Familias Unidas por la Justicia and the cooperative Tierra y Libertad. The cooperative was inspired by the Landless Workers Movement, a mass social movement of rural workers in Brazil famous for occupying unused land and creating worker-owned cooperatives

for sustainable food production.

"They taught me that it's not just about the collective bargaining agreements and working within capitalism," Guillén said. "It's that the entire food system has to shift so that the human beings that are laboring in the food system are seen as human beings." It spurred Guillén to return to Washington, where, for the last decade and a half, she's been putting those principles into action.

AT THE WASHINGTON SUPREME COURT

building, Ramón Torres stepped forward to give his testimony. Tall, with an easy smile and a fondness for flat-brimmed hats, he's now the president of the union Familias Unidas por la Justicia. But back in 2013, he was just starting his second year of picking for Sakuma Brothers Berry Farm, a Skagit Valley farm owned by

Driscoll, the world's largest berry company, when hundreds of farmworkers began protesting their low pay. Torres helped them fight for three and a half years to form an independent union: Familias Unidas por la Justicia. The first farmworkers' union to be recognized in almost three decades in the U.S., it remains one of only five in the country.

"We see our people suffer," he told the tribunal's judges. People who haven't picked berries don't know what it's like, he said. "We pick in June, in the rain, on our knees — six years ago you couldn't take breaks, leave work, until you finished blocks."

Edgar Franks, the union's policy director and a close friend of Torres, listened to his testimony. Franks is in his early 40s, with a bushy beard and a Fjällräven beanie that's often pulled down to the gages in his ears. His family is

originally from Reynosa, Mexico, and he moved from Texas to Mount Vernon, Washington, with his mother, a farmworker, when he was 6.

Franks was working at C2C, the food and environmental justice organization, when he was brought in to lead a boycott against Sakuma Brothers and Driscoll, which has a history of multiple allegations of labor abuses. He met Torres during the years of strikes and boycotts, and now they help run the union, which has grown to 500 members and functions as a de facto support organization for farmworkers all over Washington. Over the last several years, climate change has become a core issue.

The summer of 2017 in particular stands out. That September, plumes of wildfire smoke hung over northern Washington from burning forests in British Columbia and across the Western U.S., prompting the governor to declare a state of emergency. "There was just smoke everywhere," Franks said. "People were told to stay indoors and take precautions, but farmworkers were still out in the heat working." Honesto Silva Ibarra, a father of three in his late 20s who came to the U.S. on a temporary agricultural-worker visa, was one of them; he died after working in triple-digit heat. A state investigation concluded that he died of natural causes, but found that the farm where he worked had violated labor requirements for rest breaks and scheduled meals.

While the impact of climate change on individual farmworkers is critical, Franks sees the union's work as part of a much larger struggle. "We also need to be part of this larger transition away from dirty energy to regenerative," he told me when I visited him at the union office in Burlington, Washington, in October.

This framework — a just transition — is the idea that when coal, oil and gas extraction are necessarily phased out to avoid catastrophic global warming, workers in the fossil fuel industry and communities whose health has often been impacted by fossil fuel production should not get left behind. Instead, they deserve to benefit from the green economy through retraining and inclusion in policymaking. Agriculture, Franks said, as a main driver of climate change, needs a just transition of its own — one guided by farmworkers.

Franks took this concept to Glasgow, Scotland, for the Conference of the Parties, or COP26, the annual United Nations conference on reducing global climate emissions, in November 2021. Franks was there as part of a multiracial delegation led by people on the frontlines of racial, housing and climate justice across the U.S. He said that a just transition was barely mentioned in the negotiations. Instead, delegates promoted more corporate solutions,

We also need to be part of this larger transition away from dirty energy to regenerative.



Edgar Franks, policy director of the farmworkers' union Familias Unidas por la Justicia, at the union office in Burlington, Washington.

like carbon capture, carbon markets and what the agricultural industry calls "climate smart agriculture" — seeds and practices that will support industrial-scale farming under increasingly uncertain climate conditions.

Franks didn't seem too surprised. "The people that have access are always big companies that are defining and setting the rules," he said. And as long as that's the case, the union is crucial for changing the rules in a way that benefits farmworkers. "We got the wage rate for farmworkers, we got paid rest breaks and overtime, because of a union," said Franks. But Familias Unidas por la Justicia isn't the end point; it's a catalyst toward a different and better future, one that farmworkers themselves should control. "They're the ones who are in the mud. they're in the heat," said Franks. "Not the owners or the managers; it's them. So they know firsthand the kind of work and labor that's needed."

TWO POSTERS STAND propped up against a fence at the gate of Tierra y Libertad, or Land and Freedom, a 65-acre farmworker-owned cooperative in the northwest Washington town of Everson. On one of them, a man with a sombrero and an exuberant mustache welcomes visitors as purple blueberries and bright pink strawberries rain down behind him. Torres — the president of the union — co-founded the cooperative with support from C2C. He had recently broken his arm repairing a cistern and was still getting dressed when I visited in mid-September. Usually, a broken arm would spell doom for a farmworker: Without workers' compensation or health care, they'd be out of a job and saddled with debt. Instead, Torres has been able to keep working, focusing on other tasks. His wife, several months pregnant, opened the gate for me, two friendly dogs bounding around her.

Torres told me that the idea for a cooperative came when they first began to form the union. The workers realized that there was no reason they couldn't grow berries just as well or even better than their employers, using organic methods and treating laborers fairly. C2C helped them find and purchase land in the middle of Whatcom County, which produces about 85% of the red raspberries grown in the U.S. Overnight, five farmworkers went from working for less than minimum wage to being their own bosses.

But as we walked down a dirt path, past rows of quietly dying raspberry vines, Torres was honest about just how hard running the farm has been. They have faced racism and xenophobia, as well as a deep distrust of the change the cooperative signals. As organic farmers, they've found it almost impossible to compete with large berry farms that use agrochemicals and



We don't want to do what the big farmers are doing. Now we want to make our own decisions and create our own models.

Ramón Torres, president of the farmworkers' union Familias Unidas por la Justicia, at Tierra y Libertad, a 65-acre farmworker-owned cooperative in Everson, Washington.

cheap labor. In 2018, Torres went to the local growers' market to sell 20 acres' worth of raspberries. Once buyers realized that he was the cooperative's founder, they refused to deal with him. "They bought them from everybody else, just not us," Torres said. All 20 acres of raspberries rotted in the fields.

Then the pandemic hit. COVID-19, like climate change, served to highlight the ongoing labor and racial inequities within the food system. Horrific accounts of employers forcing employees to work inside crowded, unventilated rooms and without protective equipment, gave way to stories of massive outbreaks and deaths in factories and plants all over the country. Washington Gov. Jay Inslee declared all agricultural workers essential in March 2020, but didn't introduce a plan to keep them safe until two months later. By then, Yakima County had the highest per capita rate of COVID-19 infections on the entire West Coast.

That May, Torres and Franks received a call from some angry and frightened fruit warehouse workers in Yakima, whose bosses weren't supplying proper protection. More than 400 workers from seven companies went on strike. Torres and Franks drove to Yakima to teach them how to form a union, vote for representatives and function as democratically and transparently as possible. It was a tense few months: Torres had to return to Whatcom County to tend to the farm, and Franks caught COVID-19. But the strikes were a success; the employers enacted some protections, and a group of warehouse workers eventually formed their own union, Trabajadores Unidos por la Justicia — Workers United for Justice.

For the cooperative, the pandemic was yet another blow. Local companies bought some raspberries in 2020, but in 2021, the co-op decided not to grow any at all, Torres said. They still grow blueberries and have introduced chickens and goats. Recently, they bought a cow. But the farm is not yet financially self-sufficient; it stays afloat through grants, donations and selling directly to consumers through U-Pick.

As we walked toward a greenhouse in the distance, Torres told me that they've changed their goals. Their new aim is to plant and improve the farm so that, in five years' time, five families will be able to make a living there and provide part of the capital to buy a new piece of land to start the process over again for more families.

We reached the greenhouse and stepped inside. The humid air was a pleasant 70 degrees Fahrenheit, and in front of me were rows of potted nopales, or prickly pear cactus, their round green spiked pads piled on top of each other, interspersed with dragon fruit vines climbing wooden stakes. Both are desert plants native to Mexico and adapted to dry environments — nothing like the crops typically grown in the Pacific Northwest. The fleshy pads and fruit of the nopales are treasured for their versatility, enjoyed fresh, cooked, pickled or preserved, while white or pink dragon fruit, dense and nutritious, is usually eaten raw.

Torres grew the new fruits last year as an experiment, lining a greenhouse with potted plants. This year, he plans to put more greenhouses into production. Torres said there are already people that have committed to buying their current crop. "Everyone who gets into farming here always thinks of blueberries or raspberries, because it's the only thing around here," he said. But that market is saturated, with little to offer small farmers who want to produce a variety of crops, a necessity in a future defined by climate extremes.

He gestured in front of him, painting a vision of a field full of greenhouses stocked with diverse fruits and vegetables, run by workers that don't have to risk their lives to earn a decent living. "This is a better option," he said. "We don't want to do what the big farmers are doing. Now we want to make our own decisions and create our own models."

WHEN EDGAR FRANKS returned from COP26 in mid-November, it had already started to rain. Over the next few days, an atmospheric river

storm dumped record amounts of water over northwest Washington and British Columbia.

The massive floods that followed cut off towns and Indigenous reservations from the outside world. Sumas, an agricultural town in Whatcom County, was one of the worst-hit places in the U.S. More than 500 people had to be evacuated, and many farmworkers lost their documents and their homes. The flooding was the costliest disaster in Whatcom County's history.

C2C, along with Familias Unidas por la Justicia, had planned a farmworker meeting for Nov. 18, a precursor to the next Farmworker Tribunal. They hoped to debrief the farmworkers on the Glasgow climate talks and discuss how to best advocate for wildfire smoke exposure rules for outdoor workers. Perhaps more importantly, Franks said, they also wanted to talk about the cooperative and the new economy they envision — a diverse regional economy of small farmers and cooperatives. One that would fundamentally change the way food is produced and valued, taking into account the true cost of production on workers and the environment, creating a system that is as just as it is sustainable.

The extreme weather shifted their plans. They spent the meeting talking about the community's immediate needs: how to find housing for those displaced by floods in freezing temperatures, how to replace lost documents, how to get money to those who needed it but, because of their visa status, were not eligible for government support.

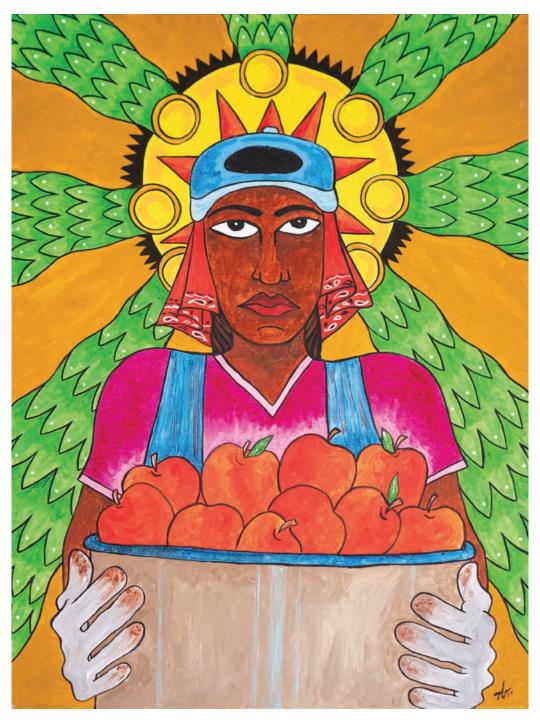
Six weeks later, around the new year, an extreme cold snap pushed temperatures to a record low around Everson and other areas hit hard by the flooding. Everything at Tierra y Libertad froze, including the cactus. Torres, who had been away for the holidays, came back to a greenhouse full of rotting stalks.

"It's hard," Torres told me in January, his voice sounding weary at the thought of how much work he had lost, and how much more it would take to get the farm running again. "But we know these kinds of things will continue to happen with climate change." The only thing to do, he said, is not lose motivation. So Torres plans to fill the greenhouses with dragon fruit and nopales again this year, and he'll try to prepare for a future where extreme heat and extreme fires are followed by equally extreme flooding and cold, the same future shared by all farmers. At least now, he and the other workers will be the ones making the decisions.

Reporting for this story was supported by the Society of Environmental Journalists.

The entire food system has to shift so that the human beings that are laboring in the food system are seen as human beings.

VISIBLE HANDS



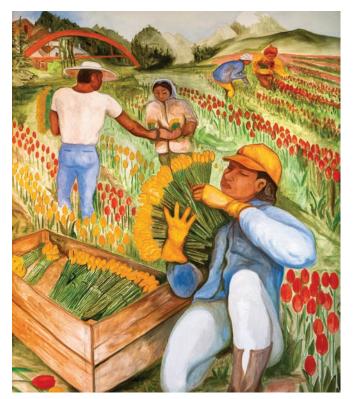
Antonio Gonzalez
Manzana Mama,
acrylic on canvas, date
unknown.
Courtesy of the
Gonzalez family
and Communityto-Community
Development.

Artwork created by farmworkers and their communities paints an authentic picture of farm labor in Washington, countering a system that views these workers as invisible and disposable.

Text compiled by Sarah Sax







Jesús Guillén Strawberry Harvest, La Conner (facing), oil, date unknown.

La Conner Tulip Harvest, oil. 1991.

Courtesy of the Guillén Family Collection.

MY FATHER, JESÚS GUILLÉN, was always painting. When he was home, most of his time was spent at his easel with his brushes, painting in his studio and, when he didn't have a studio, he was in the house. He was always painting; that was his life. Painting farmworkers was what he did, and he would always tell us about the beauty of the work and that we as farmworkers didn't even recognize it ourselves — that we didn't recognize the beauty of what we were doing and the skill of it.

He would say that every part of your body when you're working the land and doing this work is graceful. When I do social justice work for farmworker rights, that's what I'm thinking about. When I decided to organize instead of focusing more on art, my father was very disappointed. I told him, 'I'm going to paint a different canvas. I'm going to try to make your canvases real.' That's the influence. I wouldn't have had the vision to do it if it hadn't been for him painting it.

—Rosalinda Guillén, farmworker advocate and executive director of Community-to-Community Development in Bellingham, Washington. to question the lifestyles of the farmworkers versus the lifestyle of the landowners or the ranchers. I started seeing and learning more about how, in the past, farmworkers were abused — how in the beginning the United States used Native Americans in the missions and then used slaves. In the U.S., agribusiness has always relied on disadvantaged communities, so they can make the most money out of it, and so they can grow.

I've been collecting vintage labels from produce, and there's always this beautiful scenery, with children or women or men. And there is no trace of how hard it is to produce the food and who the people are who are behind this produce. Even now, a lot, if not all, of the boxes that I've been collecting are pretty boxes — but there's no trace of farmworkers.

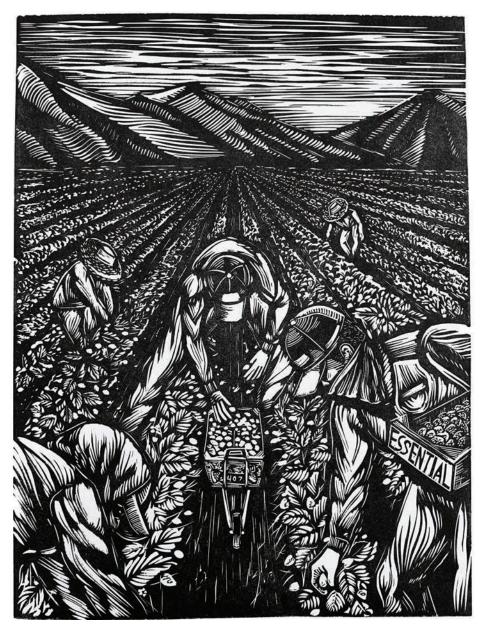
—Narsiso Martinez, mixed-media artist and former farmworker in Washington, Long Island and California.

Narsiso Martinez

The Weed Sprayer, ink, gouache and charcoal on found produce box, 2020. Courtesy of the artist and Charlie James Gallery.







Christie Tirado America's Essential Workers, linoleum print, 2020. Courtesy of the artist.

I WAS DRAWN TO AGRICULTURE and farmworkers from working here in Yakima as an art teacher. This is where I live, the nation's fruit basket. You go anywhere here — five minutes north, south, east or west — and you see hop fields, you see apple farms. My students are the children of these farmworkers.

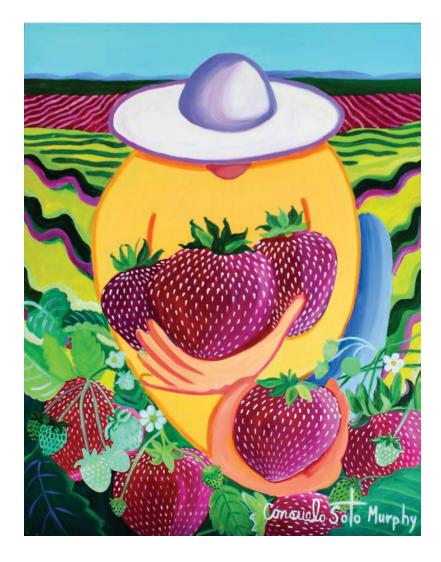
I noticed that there was a lack of illustrations or representations of these migrant workers, not only in gallery spaces, but also in institutions. As a teacher taking students to art galleries, it was really important for them to see themselves reflected and their family and cultures illustrated. I just want these kids to see their background appreciated and valued.

—Christie Tirado, Mexican American artist and elementary school art teacher in the Yakima Valley, Washington.





Pablo Soto Short Hoe, oil on canvas, 2017. Courtesy of Consuelo Soto Murphy.



I USE MY OWN MEMORIES from when I was a child migrant worker to create my paintings. I did not have to work as long and hard as my older siblings, and maybe this is why I see so much beauty in field work. It was tough, dirty work and many, many times I cried when I had to leave my warm bed at 4 a.m. to go out into the freezing morning. There were times when I was so tired that I could barely lift my arms and legs, my boots caked with mud, and an airplane or helicopter would dump pesticides on the field with no regard to us.

Despite those things, there was always something so beautiful about working with your family, your friends, your people, and with nature. I loved the smell of the earth, and there were so many sounds: crickets, frogs and all kinds of birds. It was beautiful. I remember as a little girl, I would look out at the fields and take mental pictures. I would think to myself, 'I don't know how, but I will use this one day.

—Consuelo Soto Murphy, painter and former farmworker, Richland, Washington.



Consuelo Soto Murphy *Big Strawberries (left)*, acrylic on canvas, 2021.

Sunnyside Asparagus (above), acrylic on canvas, 2019.

Courtesy of the artist.



This portfolio was compiled in collaboration with ArtsWA/the Washington State Arts Commission, Community-to-Community Development, Charlie James Gallery, and the individual artists and their families.

Reporting for this story was supported by the Society of Environmental Journalists.

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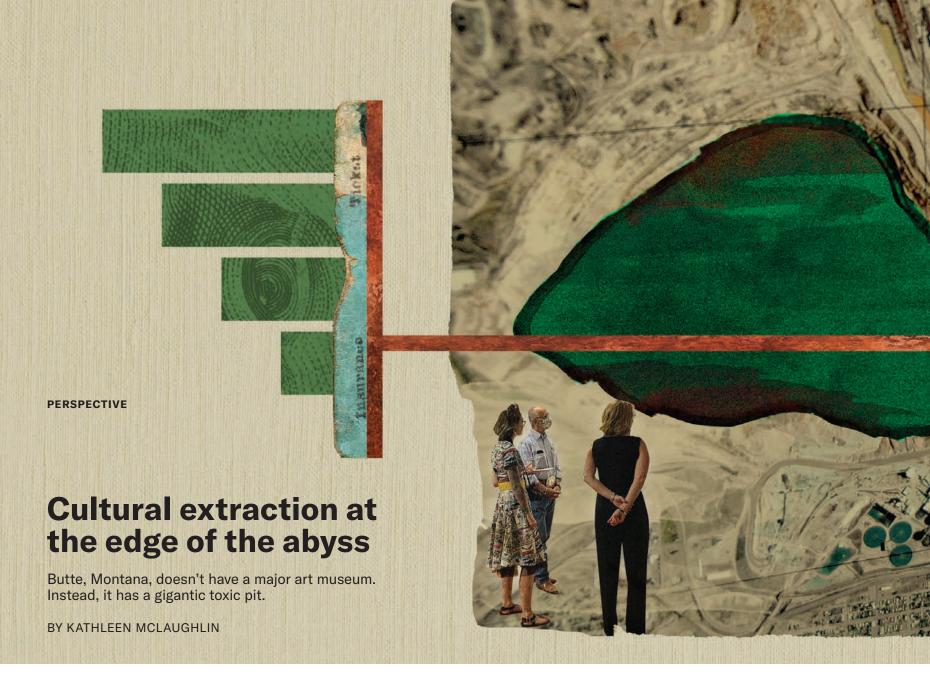
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BEFORE THE SUN RISES over Butte, Montana, on cold winter mornings when the air is still and dark, the sounds of shotgun blasts and air sirens pierce the quiet — ceaseless reminders of the massive toxic lake left behind in the city, a monument to unchecked corporate greed.

The mile-long acidic waters of the lake, known as the Berkeley Pit, mark the site of an abandoned copper mine. In years past, migrating birds have landed on the deadly lake and died by the thousands. For now and the foreseeable future, the solution lies in using noise to frighten away flocks of snow geese and other waterfowl before they land. The Atlantic Richfield Cocreated this environmental catastrophe when it ceased mining the 1,600-foot-deep open-pit mine, which had been one of the world's biggest copper producers, in 1982, nearly a century after it began. When the company stopped mining, it shut off the groundwater pumps at the pit. That allowed water to flow through the honeycomb of underground

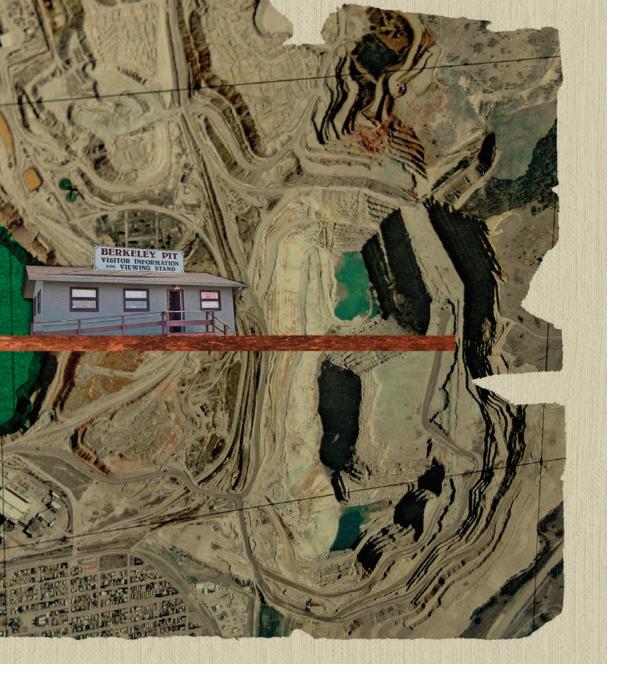
mine tunnels that weave beneath Butte, filling the pit and creating today's lethal lake.

In recent years, officials have used federal Superfund dollars to sculpt and reshape the hills in town, concealing the greenish waters of the pit from view. People who want a glimpse must first pay the city a few dollars to walk down a long tunnel that leads to a platform overlooking the eerie stew. An audio recording of a former Chamber of Commerce leader extols the virtues of mining and Butte's own historic role in feeding an insatiable demand for copper through two world wars.

It is impossible to live in Butte and forget about the Berkeley Pit. Yet people who don't live here remain oddly fascinated by it and feel compelled to remind those of us who do that it exists. Nowhere is this more evident than in a collective global art project, inspired by horror at Butte's big open scar, meant to expose the perils of industrial degradation of natural landscapes. The

project, "EXTRACTION: Art on the Edge of the Abyss," opened last summer, but not here. Instead, it debuted in a multi-story art museum 121 miles away in the wealthier, larger city of Missoula.

Since then, more than 60 venues across the U.S., Canada and Mexico have hosted exhibits of work by hundreds of artists: photographs, paintings, sculptures and other pieces in a variety of mediums about the perils of extractive industries. Sam Pelts, a founding organizer of the project, said its larger goals are not specifically about Butte, even though the city's image has crept into shows as far away as Phoenix and New York. Rather, the collective is meant to inspire communities to approach environmental problems locally. "All the environmental and climate crises we're facing right now — all of those problems are downstream from this larger cultural problem that we have, which is humanity's inability to conceive of natural resources as anything but things to be plundered," Pelts said.



Still, he said, skipping Butte was a mistake, and the project finally opened a small show in a gallery here in December. Organizers initially told me they couldn't find a place to host the art in Butte, adding that the city's politics are "bad": Although the community consistently votes Democrat, it's also pro-mining. And, in one instance, a composer wanted his piece for violin and chamber orchestra, described as "written in response to the horrific impact of the Berkeley Pit," to be performed in Butte. But he couldn't get permission to stage it on the edge of the pit — a dangerous toxic lake surrounded by potentially unstable land. The work debuted in Seattle instead.

It appears that the initial decision to skirt around Butte made it easier to talk about the place and its problems from the outside, rather than engaging the community that actually lives with the mess. It's cultural extraction in action — taking away bits of history and community

without providing any context for it.

While the fascination with Butte's big catastrophe lingers, in many ways it has begun to feel dated, a tired refrain giving way to newer, bigger problems. Today in the Mountain West, most people are more worried about making enough money so they can afford to live here than they are about natural resource extraction. Montana's population, barely a million people, grew by 18,000 people from July 2020 to July 2021, a rate second in the nation only to Idaho and tied with Utah. That population boom has not been accompanied by a boom in well-paid jobs. It has, however, ratcheted up the price of living here. Meanwhile, there's almost no political will to mitigate the resulting housing crisis and keep communities from splintering.

Butte, for nearly a century the heart of economic and political power in Montana, sits quietly in the geographic middle of the state's new upheaval: gentrification spreading like an

Julia Lubas / HCN

unchecked prairie fire through Montana and the wider West.

Eighty miles southeast, in Bozeman, dozens of people live in a makeshift town of camp trailers and tents that sprang up on the edge of the city as workers were priced out by the pandemic housing rush. The city has fallen victim to its own popularity, with median home prices rising last year to over \$700,000, while the median income hovers around \$55,000 a year. And that's if you can find a house to buy at all.

To the northwest, in Missoula, a recent development debacle in the heart of downtown highlights the city's path toward wealth and exclusivity. Last year, the local newspaper sold its riverfront building to California- and Utah-based developers, who revealed plans to build highend condos and retail spaces. When residents pushed back, one of the developers excoriated critics on social media, in one instance saying the project is "not for Missoulians."

Surrounded on all sides by wealth-driven, community-eroding development, Butte's pace still feels normal, almost quaint. The grand brick buildings of its historic uptown have been bought up, but many remain empty, awaiting unknown futures. The city of 36,000 stalwarts stays tightly knit. The town might be pockmarked, but it remains intact, for now.

In some way, Butte's infamous scars work as insurance against gentrification.

The toxic pit — and outside fascination with it — help keep the very wealthy away. And while the city has seen a trickle of growth and housing prices have risen more than 20%, the pandemic squashed the number of restaurants and bars. There is no major art museum or grand library on the horizon. Instead, Butte's slow change seems to be coming from people who have been pushed out of other places in the West — hearty, edgy folk finding community in a city that winks at its own toxic stigma.

It is an untenable choice to have to make: Either live next to toxic waste that will never be fixed and inspires cultural extraction, or else live in economic precarity fueled by a suffocating wave of gentrification. But for now, it's what we have.

Kathleen McLaughlin is a journalist and writer who lives in Butte, Montana.

Note: HCN photo editor Roberto (Bear) Guerra has contributed images from his work in Latin America to "EXTRACTION: Art on the Edge of the Abyss."

How do you make a movie about a hyperobject?

The new film *Don't Look Up* turns climate change into an allegorical comet. Does it work?

BY BEN GOLDFARB

YOU ARE, AT THIS POINT, well aware of the crisis. Scientists have warned us, but we've doubted their data or dismissed them as alarmists. Politicians, preoccupied with transient election cycles, have neglected the issue, or else weaponized it in the culture wars. Large segments of the media have ignored it in favor of celebrity scandals, while corporations are profiting by obfuscating its dangers and thwarting possible solutions. And our puny brains, so ill-equipped to calculate future risks, have locked up like ungreased gears in the face of inevitable catastrophe.

The crisis in question is, more properly, two crises — one metaphorical, one all too real. In Adam McKay's new film Don't Look Up, the fictional doomsday device is a huge comet, a "planet killer" that will obliterate the Earth in six months. The horrified astronomers who discovered it (played by Jennifer Lawrence and Leonardo DiCaprio) leak the news to the press, demand action on talk shows, and beg for help from a crass president who commands legions of red-hatted denialists, only to be brushed off at every turn. This is, of course, an allegory for climate change, the real world's very genuine, very immediate and very undealt-with cataclysm. As parables go, it's a blunt one — but then, that's what it takes to make art about a hyperobject.

Don't Look Up, as the opening credits tell us, was made by Hyperobject Industries, McKay's production company. The company takes its name from a term coined by the philosopher Timothy Morton, who, in 2015, explained the concept in an essay for High Country News. Hyperobiects, Morton wrote, are those massive, overwhelmingly complex things "that you can study and think about and compute, but that are not so easy to see directly." A Styrofoam cup isn't a hyperobject, but all the Styrofoam in the world is; a speck of plutonium isn't, but all the plutonium ever produced is. You can't touch hyperobjects, yet they shape human lives in tangible, often deleterious ways that leave us morally obligated to deal with them. The Dust Bowl was a hyperobject. Chronic drought is a hyperobject. And global warming is the ultimate hyperobject — "something that is so big and so powerful," observed Morton, "that until now we had no real word for it."

Over the years, Morton has acquired a substantial following. The philosopher has been described as "the most popular guide" to the Anthropocene, and they have

published their dialogues with Bjork at the Museum of Modern Art. McKay first encountered hyperobjects in The Uninhabitable Earth, the journalist David Wallace-Wells' grim account of how thoroughly screwed our planet is. Morton's ideas resonated with McKay, whose recent films have gravitated toward big, elusive concepts, like predatory financial instruments (The Big Short) and the ruinous consequences of neoconservative foreign policy (Vice). The notion of hyperobjects, to McKay's mind, encapsulated the ethos of his new production company — encapsulated it so perfectly, in fact, that Morton's neologism would supply its name.

"The whole idea of the company was, 'Wow, the world is insane and shifting and teetering," McKay told me over the phone, about a week after his movie's Netflix release. "What does that mean for the kinds of stories we should be telling?" He struck up a correspondence with Morton and later invited them to speak at a retreat with Naomi Klein, Ron Suskind and other thinkers. "We all got together and talked about where stories are headed," McKay said. "We're trying to describe the indescribable. What a great, futile mission."

McKay wanted to make a movie about the most colossal hyperobject of all — global warming. But climate change's hyperobjectivity made it a slippery subject. Stories thrive on specificity: The best ones tend to involve recognizable characters acting in discrete locations in a relatively linear chronology. Hyperobjects, by contrast, scoff at narrative. Global warming is operating everywhere, affecting everyone, all the time. Its incorporeal vastness inherently stymies art.

McKay addressed that dilemma in a couple of ways. First, at Morton's suggestion, he decided to write a comedy. "When it's absurd, when it's playful, it allows us to take in harder, more challenging truths," McKay said. "One thing we can all agree on is that the world is frustrating and crazy, and that's

obviously what the astronomers in the movie encounter." Few of us are climatologists, but we've all struggled to make sense of a civilization run by venal politicians and their corporate masters. "For a crowd to be laughing, there has to be some common ground," McKay said — no matter how thematically bleak.

Second, of course, was analogy. If hyperobjects defy storytelling, the workaround was to create, well, an object. The metaphor McKay settled on — an intergalactic ball of rock and ice - most likely had multiple origins: In one interview, McKay credited the producer David Sirota, while Morton and their artistic collaborators have been deploying the phrase "We Are the Asteroid" since 2018. Regardless, McKay said, the comet served as a "sleight of hand," a clean, incontrovertible disaster that brushed away the messiness of climate science — "a very simple truth that's coming on a very predictable schedule." Having dispensed with global warming's ambiguous timeline, McKay could foreground the absurdity of society's response. When planetary death is days away and Big Tech is still trying to strip the comet for parts, you know we've descended into kleptocratic hell.

The film, in my view, succeeds — it's consistently funny, and if its metaphor hits us over the head, well, we deserve the whack. But I also wondered if, in analogizing a hyperobject, Don't Look Up sacrificed something essential about what made its actual subject so damn tricky. Unlike McKay's comet, climate change won't instantly annihilate all life. Instead, hyperobjects are what Morton describes as nonlocal, meaning they're distributed across vast swaths of space and time, the future included. Sure, we're experiencing climate chaos today, but our descendants will have it much worse — vet they can't advocate for themselves in the present. Global warming is intractable because, unlike the comet, it's a problem of intergenerational justice: The humans who will bear its brunt don't yet exist.



There are other vital differences. The comet's outcomes are binary: Either it'll destroy us, or it won't. But climate change is a gradient; a planet that warms two degrees is nothing like one that heats up by three or four. Hyperobjects, Morton has written, are *phased*, meaning we only encounter pieces of them at a time. Likewise, global warming flummoxes us because it's a choose-your-own-misadventure with infinite prospective paths, each contingent upon our own response to it.

When I attempted to raise this conundrum to McKay — that, in objectifying a hyperobject, you potentially strip it of the attributes that make it so vexatiously hyperobjective in the first place — I tied myself in an inarticulate knot. Still, McKay gamely tried to follow my tortuous train of thought. Then he said something that surprised me:

I'd identified the wrong hyperobject in *Don't Look Up*. Global warming wasn't the hyperobject of concern, he said. Instead, it was "modern civilization's *reaction* to global warming" that was the problem.

"I think the hyperobject is what (the astronomers) confront, which is a massive, shifting system of careerism, profitization, politics and leveraged power," McKay told me. "That's what's confusing and traumatizing." Global warming is vast, yes, but its fundamental physics aren't much more complex than a comet's. The hyperobjects that animate the film, to McKay, aren't geophysical entities — they're capitalism, electoral politics and human psychology. "There are like 15 hyperobjects that all gather around the hyperobject of climate change," McKay said.

When I talked to McKay, he was recovering from COVID-19, yet

another society-melting hyperobject. It occurred to me that we'd engineered a world perfectly conducive to hyperobjects: one that was more globalized, more online, more ephemeral, more polluted and more dependent on bewildering technology. (Can *you* explain the blockchain that underpins your bitcoin holdings?) With trepidation, I asked him what hyperobject he planned to turn into a movie next.

"I'd love to get into the real rot at the center of the system, which is dirty money," he replied. "The climate crisis, income inequality, homelessness, the lack of health care, the opioid epidemic, guns—all of that stuff is driven by dirty money freezing up our system. So I think that's a pretty good hyperobject to go at." He paused. "Would you say that systemic corruption qualifies as a hyperobject? I think it does."

In Aspen, Colorado, WE ARE THE ASTEROID III, a conceptual artwork by Brooklyn-based artist Justin Brice Guariglia, displays a catchphrase coined by Timothy Morton. Jeremy Swanson

"We're trying to describe the indescribable. What a great, futile mission."

THE SEASONS OF UNALAQLIQ



Winter, Kivalina, Alaska. Brian Adams

A flicker of light and reclamation

An Inupiaq writer welcomes the nourishing glow of a qulliq into her home.

BY LAURELI IVANOFF

MY SISTER-IN-LAW, Yanni, says her grandma always had to sleep with a light on. Yanni once asked her why. Her grandma said that when she was growing up on Little Diomede, an island in the middle of the Bering Sea, there was always the light from a qulliq as she went to sleep. With only darkness at bedtime, the air felt suffocating.

That's the only story I know of someone who grew up with the light of a seal oil lamp. Maybe my gram, too, went to sleep with a qulliq when camping with her family in a white wall tent. But now, like most questions that spring up in adulthood. it's too late to ask.

I didn't see a qulliq until I was a senior in high school. I had flown to the big city, Anchorage, from Unalaqliq, or Unalakleet, the hardworking fishing and hunting town of just 750 people on the western Alaska coast, where I grew up and still live. To me, Unalaqliq is the center of the world. Its name, however, means "southernmost": We are the southernmost Inupiaq community in Alaska, and we're cradled by the river with the same name.

In Anchorage, at the Alaska Federation of Natives Youth and Elders Conference, in a fancy downtown building, I was maybe 50 feet from the stage when the organizers lit a seal oil lamp. Maybe in ceremony. Probably in demonstration. I was annoyed that I couldn't really see what was happening. But I saw light, and it felt sacred. People next to me were talking, and I wanted to stop them. To shush them. So they could notice. Appreciate. Because for generations, the qulliq had been forgotten. Seeing seal oil fuel light and heat ignited something inside me; I didn't have words for it then, but in that moment I understood that goodness comes from reclamation. Now I understand that restoring what was lost or taken away not only strengthens my identity — who I am as a Native woman — it softens my heart in relationship with others. It's nourishing.

So this past summer, when I saw an Instagram post about a qulliq workshop, I immediately signed up. Soon after, our postmaster handed me a package containing a 3-by-4-inch block of soapstone, along with a flat rasp and a curved one.

I laugh today, remembering how after more than a year and a half of taking COVID precautions seriously and limiting my interaction with others, even the prospect of an *online* class made me nervous. But the anxiety completely left my body and kitchen the moment the workshop host, Kunaq, and the other students made their introductions. It felt good to be with other Inuk women who, though scattered throughout Alaska and the country, were eager to connect with a simple but long-hidden part of our culture.

Kunaq shared a few examples of different materials used for constructing a qulliq. She showed a photo of a 28-inch qulliq made of stone taken from Unalakleet and now housed in storage at the Anchorage Museum. She also showed a crude, simple qulliq made from an aluminum smoked oyster can. She discussed the traditional wicks: moss, or cotton from cotton grass or cottonwood.

Kunaq then asked a question that pulled at something deep and sad and hopeful inside me. "When was the last time a qulliq was lit in your community?"

I had seen a tiny, old seal oil lamp my cousin was gifted from a friend that sat on his shelf. No longer a tool for light, but an artifact. And when I was little, I found Papa's skin scraper in his bedroom. The spruce handle, carved with peaks and valleys, was customized to perfectly fit his grasp. He probably never knew the word "ergonomic," but Inuk tool makers like him were masters of the concept. He still had skins to scrape and preferred his handmade tools for the job, but by then Papa and Gram had electricity and no need for a qulliq.

On the final day of class, Kunaq taught us how to light our qulliit. Behind our house, surrounded by birch and black spruce, is a clearing of open tundra where we pick blueberries, cranberries and ayuu, or Labrador tea. That day, I gathered dry white caribou moss for the wick, and for the fuel I grabbed from our refrigerator a small mason jar of smooth white rendered fat from a black bear my brother harvested. Did my ancestors ever use bear fat? I plopped a few teaspoons of fat in the bowl of the lamp. Where is the last qulliq used by our family now sitting? I rubbed the lichen with my hands, feeling its dry scratchiness in my palms. I pressed lichen onto the lip, the highest part of the lamp, and lay more down its inside curve to connect the wick down to the fuel. What would my great-great-grandma have used for her wick? I dipped my fingers in the fat and dabbed, as if delicately icing the tippytop of the wick. And in my kitchen, with a match, I lit my gullig and watched the flame dance.

"YOU SHOULD LIGHT YOUR QULLIQ, Aaka," my 3-year-old son, Henning, said to me. It was one of those rare calm winter days in Unalakleet. Henning had just come inside from playing in what my husband jokingly calls naluagmiu, or white man's snow — fluffy flakes that had fallen straight down, a type we rarely see in this windy country. It was just about suppertime and already dark, and I agreed with my bossy toddler.

I placed a small piece of paper towel into the seal oil lamp and spooned some bear fat into the soapstone vessel. Once the dull paper held a purposeful sheen, I struck a match and lit the qulliq. Henning watched the entire ritual. Though it's not a daily thing, I do this often enough now that he takes it for granted. Like Dad getting firewood, or Aaka making tea with big drops of honey. And I love that. That unlike my experience, the lamp will always be in his memory.

I left the lamp on our kitchen table, and for a moment we both watched the small flame dance along the rim. The light simultaneously ancient and new. Grounding and lifting. Giving strength from just a flicker of understanding of where we come from. And I noticed my face and belly soften and my back straighten. Then Henning padded back to the living room to play.

FOR A CHRISTMAS GIFT, I sanded a qulliq for Yanni and my brother. My black leggings turned white from the fine dust that fell as I sanded the block of soapstone into a curved and graceful vessel. My butcher-block kitchen counter, the one I daily lose the battle to keep clean and uncluttered, was covered in dust, too. A piece of coarse purple sandpaper lay crumpled and softened. Used up. My sinuses felt heavy, but the air in my kitchen was buoyant and dancing.

This will not just sit on a shelf, I thought, the life of the lamp emerging as I removed smaller and smaller bits to refine the shape. Finally, I rubbed bear fat into my hands like it was lotion. I cradled the piece of matte, light-gray stone in my hands and moved it around, feeling its slopes and valley, its slippery surface. Once the whole lamp had darkened, smooth and rich, the qulliq was complete. I placed it on our kitchen windowsill next to my own qulliq, ready to light.

Laureli Ivanoff, Inupiaq writer and journalist, makes seal oil, dried fish and strong coffee in Unalakleet, Alaska.

"The Seasons of Unalaqliq" is a column by Laureli Ivanoff, an Inupiaq writer and journalist, exploring the seasonality of living in direct relationship with the land, water, plants and animals in and around Unalaqliq (Unalakleet), on the west coast of what's now called Alaska.

Heard Around the West

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

BY TIFFANY MIDGE

Hello, everybody. I'm thrilled to be taking over "Heard Around the West." I've been tasked with filling the very big boots of the venerable Betsy Marston, who has been bringing hilarity and wonder to these pages for years. I hope I can match the wit and marksmanship Marston brought to this roundup of quirky news, and I look forward to discovering yet more off-the-beatenpath stories from these Western states. —*Tiffany Midge*

OREGON

A rather sociable resident of Grants Pass sought out the company of delighted school kids at Allen Dale Elementary School in November. The Oregonian reported that the special guest peeked into classrooms and pecked politely on doors before making his way inside to help himself to snacks, even perching atop some students' heads for a chat. The visitor, as you may have guessed, was not a human, but a talking crow, or maybe raven, named Cosmo. Cosmo regaled both students and teachers with remarks like "What's up?" and "I'm fine." Cosmo also demonstrated a full command of expletives, though The Oregonian did not disclose exactly which ones. Animal control officers were called to the scene, but they determined that capturing controversial corvids was out of their jurisdiction. A wildlife officer from Oregon State Police also failed to net Cosmo, who made a game out of the capture attempts while the entire student body cheered it on. After the cops gave up, Cosmo retired in triumph and ended up spending the night outside the school. Eventually, his caretaker, Daphnie



Armando Veve / HCN

Colpron, who had been distraught over the bird's disappearance during Thanksgiving weekend, was alerted. Cosmo was returned to her home, though Colpron insists that he remains a free bird. We think he has a good career ahead as a substitute teacher and are looking forward to his classroom remarks on the work of Edgar Allen Poe.

MONTANA

This is not your typical Montana story about a bear, though it is sure to knock the stuffing out of even the most stoic among us. In 2020, 6-year-old Naomi Pascal and her family were hiking in Glacier National Park when she lost her teddy bear along one of the trails, KPAX reported. What made this teddy bear particularly special, is that it had been with Naomi since she was adopted from an Ethiopian orphanage—it was an introductory gift from her new parents, Ben and Addie Pascal. Naomi and Teddy

have had many adventures together, visiting Ethiopia, Rwanda, Greece and Croatia with their new family. But when the bear was lost, Naomi and her family assumed they would never see it again. Fate intervened when an intuitive park ranger and bear specialist, Tom Mazzarisi, found the teddy bear in a pile of snow and rescued it. Usually such items are tossed, Mazzarisi said, but in this case he relented and allowed the teddy bear to ride along with him on the dash of his patrol truck. What followed is a whole lot of kismet: A Michigan woman visiting Glacier the following September spotted the teddy on the dash of Mazzarisi's truck and recognized it as the one she had seen in a Facebook post by Naomi's mom. The stuffed teddy bear and Naomi were soon reunited, and no, I'm not crying, you are.

NEVADA

In 2020, 20-year-old Shad Mayfield, of Clovis, New Mexico, won the

world championship title for tie-down roping, making him just the third Black world champion in professional rodeo. "It's not every day that there's an African American cowboy that wins the world," Mayfield told The Las Vegas Review-Journal in December at the National Finals Rodeo, Mavfield was one of three African American competitors — the other two being Cory Solomon and John Douch — at the event, considered professional rodeo's most prestigious. The young cowboy expressed his pride in being a role model for other Black kids and between events taught young people at the Grant a Gift Autism Foundation how to rope calves and mount horses.

THE WEST

A milestone for Native Country took place on Dec. 16 when Charles F. Sams III, a citizen of the Confederated Tribes of the Umatilla Indian Reservation, became the new director of the National Park Service. The swearing-in ceremony was officiated by Deb Haaland, (Laguna Pueblo), the first Native American appointed to the rank of secretary of the interior. Sams will supervise management of 423 parks covering 85 million acres.

Tiffany Midge is a citizen of the Standing Rock Nation and was raised by wolves in the Pacific Northwest. Her book, Bury My Heart at Chuck E. Cheese's (Bison Books, 2019), was a Washington State Book Award nominee. She resides in north-central Idaho near the Columbia River Plateau, homeland of the Nimiipuu.



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