

High Country News



Climate change
is changing
public health

Meet Walter
the hadrosaur

The spirit of
the Rillito

Vol. 55 / May 2023
No. 5 • hcn.org

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Christine Damiani, director of the butterfly conservation program at Sequoia Park Zoo in Eureka, California, examines early blue violets for leaves small enough to feed the larvae of the Behren's silverspot butterfly. **Alexandra Hootnick / HCN**

Know the West.

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The illusion of discovery

BEGINNING IN THE MID-1400S — bear with me here — the Catholic Church issued a series of decrees sanctioning the dispossession of the Indigenous peoples of Africa and the Americas. Known as the “Doctrine of Discovery,” these decrees were used by European colonial powers to justify centuries of violent subjugation. They underlay the 1823 U.S. Supreme Court ruling that Native Americans possessed only “occupancy” rights to their land, enabling the further colonization of the West.

Taylor Behn-Tsakoza (Eh Cho Dene and Dunne Zaa), a youth representative for the British Columbia Assembly of First Nations, met Pope Francis when she joined a Canadian delegation to Rome in 2022. After Behn-Tsakoza told the pope about her family’s experience of forced assimilation at Catholic-run boarding schools — the emotional and physical abuse, the loss of language and traditions, the fear and shame passed from parents to children — he personally apologized. Behn-Tsakoza welcomed the gesture, but she wasn’t satisfied. Echoing generations of Indigenous advocates, she called on Pope Francis to disavow the Doctrine of Discovery.

In late March of this year, he did. More than five centuries after a pair of medieval popes established the doctrine, the Vatican released a statement repudiating “those concepts that fail to recognize the inherent human rights of indigenous peoples, including what has become known as the legal and political ‘doctrine of discovery.’”

The received history of the West is full of illusions, but few are as pernicious as the illusion of discovery, which attempts to erase all who came before it. Stories in this issue of *High Country News* examine both the costs of imagined discovery and the power of rediscovery, reconsideration and reinvigoration. Writer Melissa Sevigny has rediscovered the story of Elzada Clover and Lois Jotter, botanists who conducted what might be called a voyage of reconsideration through the Grand Canyon in the 1930s. Artist Micah McCarty (Makah) is reinvigorating a carving tradition that was nearly obliterated by government-enforced assimilation. Readers are rediscovering the award-winning novel *Perma Red*, too long out of print, as its author, Debra Magpie Earling (Bitterroot Salish), publishes her new novel *The Lost Journals of Sacajewea*. And a curious Great Dane in Craig, Colorado, has prompted the town to reconsider its identity.

Sometimes, acknowledgments of the past can begin to heal wounds. Sometimes, they can help us see familiar stories anew. In any form, they enrich our present and our future.

Michelle Nijhuis, acting editor-in-chief

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Editor-in-Chief Jennifer Sahn is on leave.

Makah artist Micah
McCarty, photographed
near his home in Neah
Bay, Washington.
Mason Trinca / HCN



ON THE COVER

A mask created by
McCarty, photographed
in the forests near
Neah Bay.
Mason Trinca / HCN

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In Micah McCarty’s art, the past and future are one, and the whales never left.

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LETTERS

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PREDATORS AND PSEUDOSCIENCE

I enjoyed reading Christine Peterson's "Chronic Mystery" (April 2023). It was well written and informative. If predators can help stop or slow the spread of chronic wasting disease, I am all for it. However, I do not want to see a push for more protection over the healthy populations of big game predators under pseudoscience of predators as the answer to CWD spread.

Steve Langdon
Boise, Idaho

COMMUNAL VIEWS

Having grown up in Wyoming, I identified with "The last of Wyoming" (April 2023). I'll admit to multiple rants about the compressed geography of Wyoming in the show, not to mention the idea of Jackson Hole, or anyplace in Wyoming, somehow spontaneously becoming a communal collective. I can't tell you how emphatically I nodded my head at this line: "Other Wyoming residents see Jackson as a place apart from the rest of the state." Thank you, Taylar Dawn Stagner, for writing it.

Ryan Johnson
Portland, Oregon

*How would we like
to be "trapped" on
camera by a
different species
without our
consent?*

A FOWL BUSINESS

The article "Fowl migration" (April 2023) made me laugh cynically when the restoration ecologist and environmental consultant for ARCO and Montana Resources said, "The parties had been trying to do the right thing, and they just didn't really know how to do it." I thought that was their job!

This is a "defunct mine flooded with toxic water," and a Superfund site to boot. The right thing is to close the mine, dewater the pit, filter and remove the toxins, release the cleaned water, and take the filtered toxins to an industrial wastewater treatment site, and destroy or store them in perpetuity with forever monitoring.

All profits should be used to stop the pollution. These "croc-

odile tears" are more industry propaganda used to avoid being responsible for their actions.

Brandt Mannchen
Houston, Texas

Editor's note: The Berkeley Pit mine closed in 1982. Some of its water is being treated and discharged.

FOR ONE ANOTHER

Regarding "Why electrify?" (April 2023): I found my response to the article a celebration of each other: We're doing this for our fellow living beings. We're doing this so someone somewhere doesn't die of heatstroke, or die in a wildfire. We're doing this to save someone's home on a low-lying island. We're not making decisions that are in our interest financially, but rather trying to leave a livable world for our fellow Earth travelers.

Robert Brayden
Golden, Colorado

DO YOU WANT TO BE TRAPPED?

The article "Can camera traps relieve our species' loneliness?" (March 2023) was entirely enthusiastic about camera traps. That's not surprising, since the article only presented the perspective of the human animals that are doing the trapping. But what about the perspective of the non-human animals that are being captured in the photos?

We cannot know how animals feel about being "trapped" in this manner. But we, too, are animals, and so we can ask: How would we like to be "trapped" on camera by a different species without our consent? I would not like it. How about you?

Felice Pace
Klamath, California

COLONIALISM LIVES ON

I appreciated the reportage on the hydropower storage facility on Yakama lands in Washington ("A wave of green colonialism," March 2023). It cannot be green with the impact a hydropower storage facility would have on the Yakama way of life. The Doctrine of Discovery lives on in corporate and political America.

Cheryl Smith
Richland, Washington

UPWARD SPIRAL

As an on-and-off-again subscriber since the Tom Bell days, I couldn't agree more with Andy Kulla of Florence, Montana ("Letters to the editor," March 2023). HCN is definitely on an upward spiral. The March issue was terrific, front to back. (No surprise with ace Acting Editor-in-Chief Michelle Nijhuis at the helm.) Still, I have to single out the "Gold in the hills, but not for us" piece. Excellent photojournalism, marvelously paired with Vickie Vértiz's powerful poems, that told not just the facts about LA's petroculture injustices, but the deeper story — its impacts and social realities. Kudos all around.

Art Goodtimes
Norwood, Colorado

TRANSFIXED AND TRANSPORTED

I just read Craig Childs' long-form article on Lake Powell ("Glen Canyon Revealed," February 2023) and was transported back to an earlier, more vital time in my own life, while also being transfixed by the history, and the reporting on current events. Fantastic writing, phenomenal images. Thank you so much for investing in this kind of deeper, richer writing. A rarity these days, much appreciated.

Chris Laliberte
Seattle, Washington

Climate change is changing public health

In Washington, a new team of epidemiologists is preparing for a hotter, smokier future.

BY KYLIE MOHR

EIGHT YEARS AGO, the only worker explicitly focused on the intersection of climate change and public health at the Washington Department of Health was an intern. Since then, the 2021 Pacific Northwest heat wave caused at least 100 heat-related deaths in Washington along with a massive spike in emergency department visits. University of Washington researchers estimated that roughly 200 residents died from wildfire smoke in September 2020 alone, and noted that exposure to smoke exacerbates asthma and lung diseases. Now, Washington's Environmental Public Health Division has three climate-focused epidemiologists — two of them hired in the last year — who investigate patterns and causes of disease to anticipate, cope with and prevent them.

The Department of Health's expanding climate health team, which also includes a scientist who studies insects as disease vectors and experts on water quality and climate justice, is part of a deepening understanding of how profoundly climate change affects human health. Recent studies paint a grim picture: In addition to increasing the severity and frequency of

both extreme heat events and wildfires, climate change is creating disease hotspots while also making some infectious diseases worse. This realization is changing health experts' training, including at Harvard Medical School, which recently added a climate curriculum to all four years of instruction.

The Washington climate team members approach their work with the foundational understanding that climate exacerbates historic injustices. "Communities of color, children, older adults and pregnant people are all more sensitive to the impacts of climate change," said Kelly Naismith, the agency's newest climate epidemiologist. "They're more vulnerable." She plans to monitor emergency room data in close to real time to see how high temperatures drive diagnoses and patient numbers. "One thing we've learned in the past couple years, during heat waves, is that there's a pretty big increase in ER visits," she said.

Michelle Fredrickson is quantifying the unequal distribution of climate impacts. She's using LiDAR, or Light Detection and Ranging, a type of laser scan, to determine how tree canopy, green space and asphalt coverage affect neighborhood tem-

peratures during heat waves. Her work builds on research that has already shown how widespread those inequities are. A nationwide study published in 2020 found that areas subject to racist housing practices in the 1930s experience hotter temperatures today: Lower-income people and people of color live in areas with less greenery and more asphalt, which magnifies heat.

Washington epidemiologists are using existing data about air quality and heat-related deaths, things that are historically monitored by public health departments, for a new purpose: illuminating their connections to climate change. "When you start pulling together climate data and environmental hazard data, it starts to paint a clearer picture of the existing environmental justice issues in the state," said Rad Cunningham, senior epidemiologist. "You start seeing patterns of how those issues are going to get worse over time."

But they're not just addressing current issues; they're also trying to determine what the future will look like and how to prepare for it. "It's a paradigm shift," Cunningham said. A proactive approach can help states save lives, blunt unhealthy trends and be better prepared for emerging climate-driven threats.

That may improve the situation on the ground in Washington in the coming years. School evaluations could show where state funding is most needed to retrofit buildings and design new ones to make spaces cooler and cleaner on hot, smoky days. The team is working to make public health tools and messaging — such as tips on how to protect yourself from wildfire smoke with box fans and filters — less jargony and more useful. The epidemiologists are collaborating with newly created, climate-focused local public health positions across the state.

The climate health team's total budget — \$1.8 million this fiscal year — comes from state and federal sources. Washington is looking to climate health programs in other states like California and Colorado for inspiration. And the epidemiologists hope to learn from places dealing with problems that aren't as prevalent in Washington — yet. For example, warmer temperatures are allowing ticks to spread into areas they previously weren't able to survive. In response, Michigan's Department of Health has become an expert on ticks and tick-borne diseases, such as Lyme. "We have a lot to learn from them," Cunningham said. "We have a chance to do what they wish they would've done." ☀

"Communities of color, children, older adults and pregnant people are all more sensitive to the impacts of climate change."



REPORTAGE

Emergency services, lost in translation

A FEMA contractor's incompetence in Alaska Native languages highlights a systemic problem.

BY EMILY SCHWING | ILLUSTRATION BY ISRAEL VARGAS

A COMPANY THAT accrued more than a million dollars in contracts with federal agencies over the last two decades has reimbursed the Federal Emergency Management Agency (FEMA) for its faulty and potentially fraudulent translation work — a first in the agency's history.

In the aftermath of a historic storm fueled by Typhoon Merbok — which pummeled

Alaska's West Coast last September — FEMA hired a California-based company called Accent on Languages to translate financial assistance information into two Alaska Native languages: Yugtun, the Central Yup'ik dialect, and Iñupiaq. Both Indigenous languages are spoken in Alaska today, though they were prohibited in the past by both the state and

federal governments. Accent on Languages issued the refund after public radio station KYUK first reported that the company's translations were nothing more than "word salad," according to one Alaska Native languages expert. FEMA's federal contract with the company falls under a larger one with the U.S. Department of Homeland Security. The scandal highlights longstanding

concerns about FEMA's ability to provide emergency services to Indigenous communities and raises questions about the federal government's ongoing reliance on non-local third-party translation services.

"It just adds to the frustration that Alaska Native people and Native Americans across the country have felt in terms of being either punished for speaking traditional language in school, or just ostracized over generations," said Tara Sweeney, former assistant secretary of Indian Affairs under the Trump administration. Sweeney's great-grandfather created the Iñupiaq alphabet. "It has an impact."

As Typhoon Merbok was barreling toward Alaska, FEMA spokesperson Sharon Sanders said the agency knew it would need to provide language assistance. According to the Alaska Native Language Center at the

University of Alaska, Fairbanks, about 10,000 people on Alaska's Yukon-Kuskokwim Delta speak Central Yup'ik, while farther north, around 3,000 residents speak Iñupiaq. "I also knew that because they're not commonly used, we may have issues with getting them in a timely manner back from our language translation services contractor," said Sanders.

At one point, she said, Accent on Languages' work was almost two weeks late. When the materials finally did arrive, they were useless, according to Tom Kempton, also a FEMA spokesperson. "When I first saw the Iñupiat ones, I was like, 'What is this? It was all like hieroglyphic stuff,'" he said.

A glossy trifold pamphlet that was supposed to be in Iñupiaq was written using the wrong alphabet. Accent on Languages filled the pamphlet's pages with a smattering of Inuktitut letters — a language spoken by the Inuit of Northeastern Canada — though at least two Canadian Inuktitut speakers said they couldn't make sense of it. And more than half a dozen translations that were supposed to be in Yugtun turned out instead to be a mishmash of phrases lifted from a book of folklore and Indigenous languages collected in the Russian Far East more than 80 years ago. "It didn't take 30 seconds to realize, 'Wow, these entire forms were copied verbatim,'" said Gary Holton, a linguist with decades of expertise in Alaska Native Languages who is familiar with the Russian texts from which the phrases were lifted.

While a government database shows that FEMA initially agreed to pay \$27,800 for the work, Accent on Languages CEO Caroline Lee said in a statement that the contract expired before the full award was paid. Accord-

ing to Lee, FEMA paid the company \$5,116.41 for "translations of multiple documents into several languages." Lee said Accent issued a refund of \$3,385.13, the amount billed for the Iñupiaq and Yup'ik translations. (In January, FEMA ended the contract with Accent on Languages. USASpending.gov shows the agency holds a \$20,000 contract with the company for a different project that doesn't expire until August 2027.)

In a statement, Lee wrote that her company took on the work "not only to just merely help these languages survive, but to help these languages and cultures thrive." In an email, Lee said she does have Native speakers on her staff, but did not specify which languages they speak. Days later, Lee revised the original statement to say that Accent now requires translators to sign affidavits and is creating a new review team.

For Kristi Cruz, an attorney with the Seattle-based Northwest Justice Project, the Accent case highlights problems with how to find and utilize contractors for translation work.

"It brings up for me this tendency to want to use a one-stop shop for all of your language needs," Cruz said. "This is just a clear example of the failure of that approach."

Cruz and Holton added that there's no identifiable quality control system. Potential contract fraud among translation service providers is difficult to detect. There is no formal certification system, and agency staff rarely double-check the final products. Often contractors either cannot or do not hire local first-language speakers to lead or stress-test their final products. Instead, they rely on faulty digital and non-community produced resources — such as a

Soviet-era book of Russian folklore — to fill in the gaps.

"When mistakes are made, it's often because the translator wasn't properly vetted," Cruz said, adding that agencies frequently rely on a bilingual staff member. "But we all know that being bilingual doesn't necessarily make you a qualified translator or interpreter. And so, who's testing or reviewing the adequacy of those translations? You also have folks using machine translation tools, and we find that those are often full of errors."

FEMA isn't the only federal agency that has struggled to provide adequate access to public information in Indigenous languages. Currently, the Election Assistance Commission's translation of the federal mail-in ballot registration form — which was supposed to be in Yugtun — is instead in Siberian Yupik. The Alaska Native language is spoken by a tenth as many people as those who speak Yugtun, potentially underserving the population the commission aims to help. Kristen Muthig, a spokeswoman with the commission, acknowledged that Yup'ik is covered under the Voting Rights Act, but did not explain why the form was translated into the less widely used dialect, or how the Election Assistance Commission came to vet the company hired to do the work. She also would not say how much it paid for the work. In 2014, a U.S. District Court judge found that the state was not doing enough to assist voters who speak Alaska's Indigenous languages first and ordered the state division of elections to translate all voting materials — even "I Voted" stickers — into two Alaska Native languages. Despite that ruling, federal elections observers in Alaska were still flagging language access problems last November.

These challenges also extend into the realm of public health. Many of the links to public service announcements translated into nearly a dozen Indigenous languages spoken nationwide are dysfunctional on the federal Department of Health and Social Services' website. At the state level, Alaska's Department of Health offers no information in any of Alaska's Indigenous languages, though many of these documents are offered in Spanish, Russian and a handful of Asian and Pacific Islander languages. According to U.S. Census data, 15.6% of Alaskan residents speak a language other than English in the household. The data indicates that close to a third of that population speaks a language that is not Spanish, Indo-European, Asian or Pacific Islander, though it does not specify Indigenous languages.

Back on Alaska's Yukon-Kuskokwim Delta, and farther North toward the state's Arctic region, where Yup'ik and Iñupiaq are spoken daily, the apparent lack of effort and oversight has not gone unnoticed. Julia Jimmie, a translator for KYUK, grew up speaking Yup'ik. She's seen poorly translated information before, but she never thought to dig into who created it or how. Accent on Languages, she said, "probably thought that no one would notice where they copied and pasted from. They probably thought Yup'ik and Iñupiaq were going extinct and they probably thought they wouldn't be caught." But she also sees a silver lining in the discovery of Accent and FEMA's potentially fraudulent translations: "Now they know Yup'ik and Iñupiaq are widely spoken and widely used." ☀

Photos showing the damage caused by Typhoon Merbok by Emily Schwing.

Counting on Walter

How a dinosaur is redefining a rural coal town.

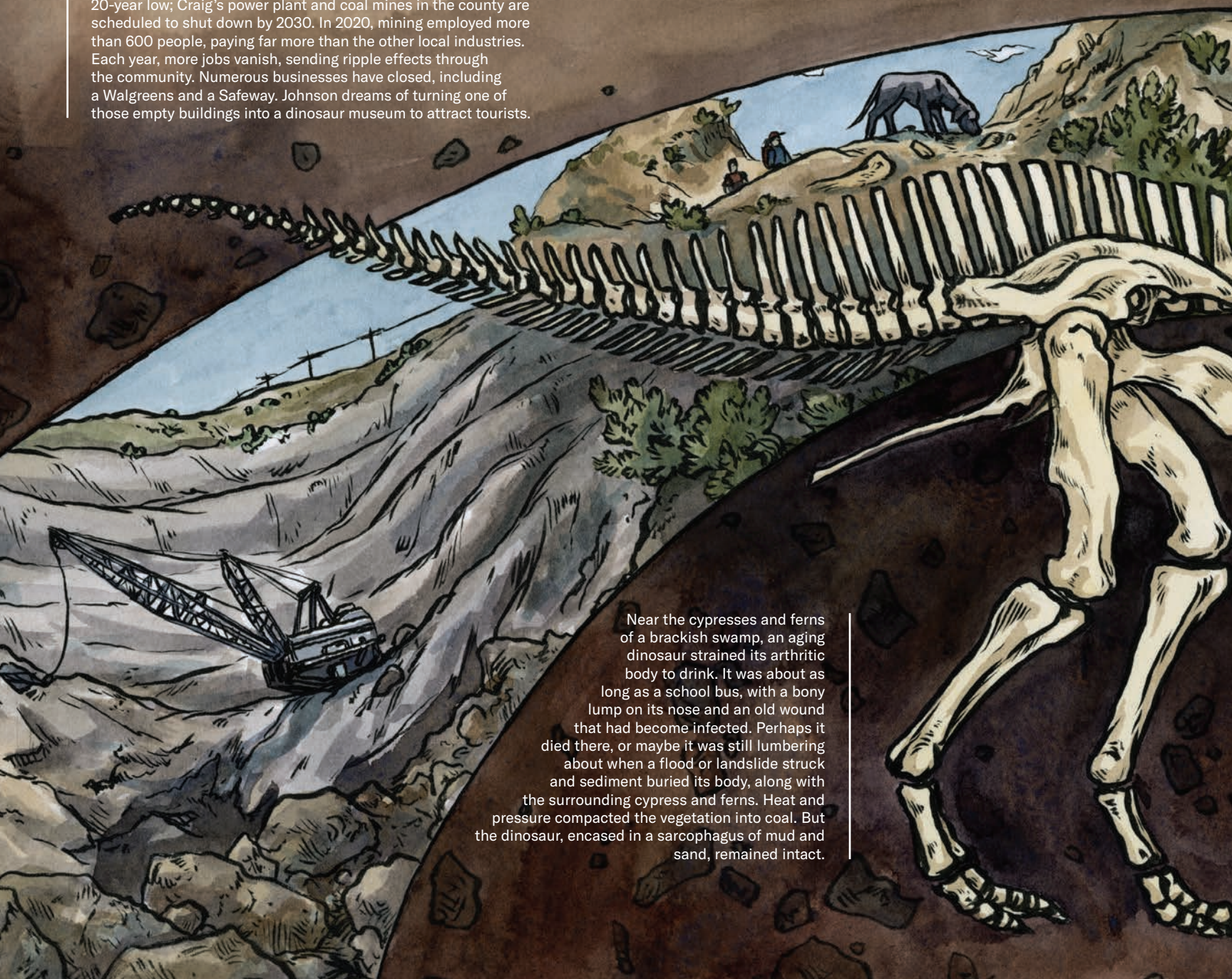
BY DEREK MAIOLO

ILLUSTRATION BY EMILY POOLE

IN 2014, WALTER, A CLUMSY, ENTHUSIASTIC Great Dane was out with his owners on public land south of Rangely, Colorado, when he stopped near a strange-looking rock. His owners investigated and found what experts say was a 74 million-year-old fossil. After years of painstaking work, scientists uncovered a nearly complete specimen of a hadrosaur, a group of duck-billed dinosaurs from the Cretaceous period. It now proudly carries the name of its canine finder: Walter.

The same year Walter was found, Colorado's coal production hit a 20-year low; Craig's power plant and coal mines in the county are scheduled to shut down by 2030. In 2020, mining employed more than 600 people, paying far more than the other local industries. Each year, more jobs vanish, sending ripple effects through the community. Numerous businesses have closed, including a Walgreens and a Safeway. Johnson dreams of turning one of those empty buildings into a dinosaur museum to attract tourists.

Near the cypresses and ferns of a brackish swamp, an aging dinosaur strained its arthritic body to drink. It was about as long as a school bus, with a bony lump on its nose and an old wound that had become infected. Perhaps it died there, or maybe it was still lumbering about when a flood or landslide struck and sediment buried its body, along with the surrounding cypress and ferns. Heat and pressure compacted the vegetation into coal. But the dinosaur, encased in a sarcophagus of mud and sand, remained intact.



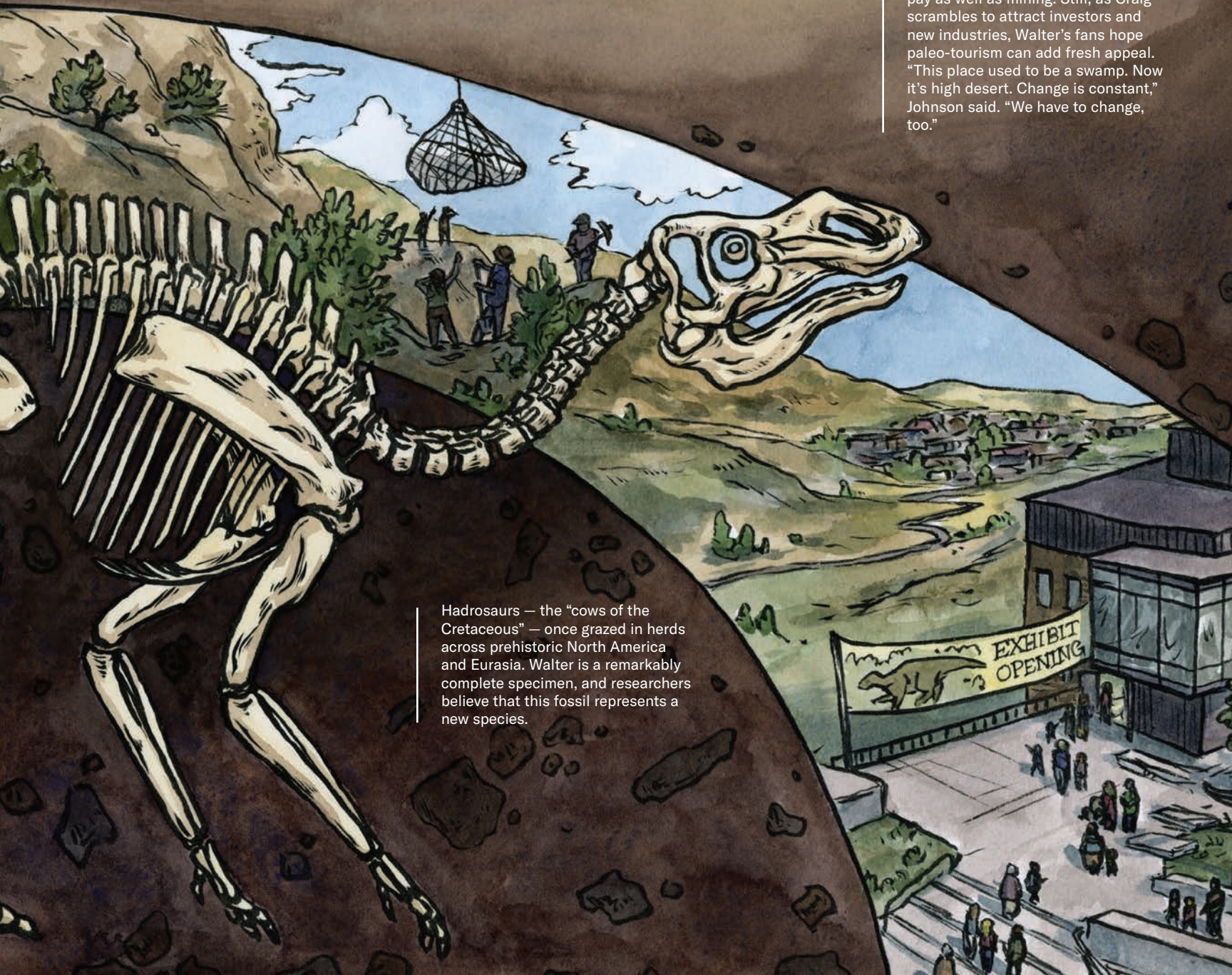
As the scientists, volunteers and students excavated, they found more fossils: a *Daspletosaurus* tooth, chunks of what may be dinosaur skin, imprints of ancient plants like screen prints on the rock. The Paleontological Resources Preservation Act says that such discoveries must go to approved repositories, typically at government or museum facilities in cities like Denver and Washington, D.C. But Liz Johnson, a paleontologist at Colorado Northwestern Community College, wanted to change that. "This is northwest Colorado history. It should stay in northwest Colorado," she said. Fortunately, that was also in the federal government's interest, so the Bureau of Land Management worked with the college to make it happen, short-circuiting a process that can take years, if not decades. Walter and the other finds will stay in Craig.



Sequoia affinis

The town of Craig loves Walter; the county visitor center sells replicas of Walter's tooth. Students and community volunteers worked for five summers to help uncover Walter's remains. The most dedicated volunteers still spend weekends and holidays meticulously cleaning fossils.

In 2021, visitors to Dinosaur National Monument, about a hundred miles to the west, spent \$24.3 million. That's a lot of money, but tourism doesn't pay as well as mining. Still, as Craig scrambles to attract investors and new industries, Walter's fans hope paleo-tourism can add fresh appeal. "This place used to be a swamp. Now it's high desert. Change is constant," Johnson said. "We have to change, too."



Hadrosaurs — the "cows of the Cretaceous" — once grazed in herds across prehistoric North America and Eurasia. Walter is a remarkably complete specimen, and researchers believe that this fossil represents a new species.



REPORTAGE

Who gets a say in tribal treaty hunting?

In Wyoming, everybody wants influence over off-rez hunting — and nobody's happy.

BY TAYLAR DAWN STAGNER

LARRY MCADAMS STOOD in the snow at Fort Washakie on the Wind River Reservation. In a crisp gray ball cap, sunglasses and a blue medical mask, the Eastern Shoshone elder knew he was in for a long afternoon. McAdams was upset, and he was not alone; roughly 30 tribal members were with him, all holding signs and demanding answers from the tribal nation's business council.

"We're here to protest House

Bill 83 ... and the council's involvement with that." McAdams said. "The state of Wyoming, or any state, has no authority over our recognized treaty tribes."

In April 2022, the Eastern Shoshone Business Council had approached Wyoming Gov. Mark Gordon's office to express an interest in addressing off-reservation hunting. Many tribes have treaty-protected hunting rights that extend beyond reservation

boundaries, and the business council wanted to open up a dialogue with the state on possible collaboration. And while the talks between Gov. Gordon's office and the Eastern Shoshone Business Council were casual, many tribal members were upset when, less than a year later, in January 2023, members of the Wyoming Legislature introduced a bill — H.B. 83 — that would allow Gordon's office to negotiate with tribes over tribal members' off-reservation hunting, fishing and trapping rights. For McAdams and the rest of the protesters, any issue involving treaty hunting should first be brought to the Eastern Shoshone's General Council, which is the constituency's governing body.

The issue of off-reservation hunting rights is a thorny one for tribal citizens in Wyoming, largely due to the state's ongoing desire to have a legal and political say over the activities of Indigenous hunters. Before the U.S. Supreme Court's *Herrera v.*

Wyoming decision in 2019, which upheld treaty-protected off-reservation hunting rights, the state maintained that statehood trumped treaty obligations.

The Eastern Shoshone Business Council originally supported H.B. 83. The council's vice chairman, Mike Ute, who spoke at a Wyoming House Appropriations Committee meeting in favor of working with the state to prevent future litigation, expressed his desire for the state and Eastern Shoshone Business Council to be on the same page. An agreement could help avoid any tense encounters between tribal hunters and state law enforcement who might be unfamiliar with treaty hunting rights.

But after the bill was advanced to House committee hearings, the Eastern Shoshone Business Council changed its mind. In a letter to the governor, the council wrote, "We apologize for this development; however, we now believe that the bill

will jeopardize and compromise the rights of our tribe and other tribes if it becomes state law.”

The business council explained that it changed its position after conferring with the Shoshone-Bannock Tribes. The tribal nation is located on the Fort Hall Reservation in Idaho, but, like the Eastern Shoshone, is a signatory of the Fort Bridger Treaty of 1868, which protects off-reservation tribal hunting rights for citizens of both nations.

Claudia Washakie, a member of the Fort Hall Business Council, spoke in opposition to the bill before the House Appropriations Committee. She said that the Shoshone-Bannock work in partnership with the state of Idaho, but emphasized that the tribe makes its own policies governing its members’ off-reservation hunting, fishing and gathering. Washakie cited language in Article 4 of the Fort Bridger Treaty of 1868, which supports off-reservation hunting.

According to the treaty, tribal members would make reservation land its permanent home, “but they shall have the right to hunt on the unoccupied land of the United States so long as game may be found thereon, and so long as peace subsists among the whites and Indians. ...” In short, the law is already clear: The tribe does not need permission from either Idaho or Wyoming to establish its own hunting regulations.

“In a contemporary sense, tribes have the sovereign authority to regulate all aspects of hunting, fishing and gathering under our treaty rights ... free from interference by state regulation,” Washakie said. “Tribes are not required to externally collaborate with any agency prior to implementing any activity protected by a reserved treaty right.”

Monte Mills, the director of the Native American Law Center at the University of Washington, said bills like H.B. 83 are not unique, and agreements with state officials regarding conservation exist elsewhere. But, Mills continued, Wyoming’s version is particularly rigid, outlining specific ways in which tribal nations and the governor’s office can enter into agreements.

“From a tribal perspective, there might be objections to saying that we’re essentially going to follow everything that the State Wildlife Commission does,” Mills said. “We’re going to follow their seasons, or we’re going to follow whatever the limitations that are set out on the governor’s ability to negotiate may not be acceptable to tribal partners.”

As evidenced by February’s protest, treaty hunting, fishing and gathering rights are an important issue for the tribes on the Wind River Reservation, particularly given the fact that the state has just poured public resources into fighting treaty hunting rights in court. Eastern Shoshone tribal members like McAdams were also upset by what they saw as a clear circumvention of their nation’s governing process by the business council. Many tribal citizens only found out about the proposed policy change after the bill was introduced.

“That creates a lot of political tension and pressure,” Mills said. “The tribal government itself may be kind of caught between the political realities of working with the state of Wyoming and making sure to represent the interests of the constituents.”

Even though H.B. 83 died in the Senate — members of the Legislature complained that Gov. Gordon should not be allowed unilateral power to en-

ter into agreements with tribes without input from state representatives — tribal hunting rights will almost certainly be re-examined later.

Meanwhile, many Eastern Shoshone tribal members remain disappointed by the business council’s handling of the issue. During the protest in Fort Washakie, Eastern Shoshone Business Council Vice Chairman Mike Ute stepped outside the council offices to address the crowd, saying the business council never initiated conversation with the governor’s office with the express desire of creating a bill like H.B. 83. He then added that the law itself did not make

agreements, it only allowed the state to enter into agreements with tribes.

“That’s not the point,” a voice called out from the crowd. “You should have come to us first.” They held a sign that read: “Respect and Honor the Shoshone General Council.” ☼

Sissy O’neal, enrolled Eastern Shoshone member, scouts big horn sheep in Wyoming’s Owl Creek Mountains, just outside the Wind River Reservation (*facing*). The toolshed at the home of O’neal’s grandmother, Beatrice Haukaas. Below, O’neal hunts to feed her extended family and community, as well as for recreation and a way of connecting with her ancestors and culture. **Joe Haeblerle**





REPORTAGE

Watching a species disappear

What does it take to save a beleaguered butterfly in a world still learning to value insects?

BY BEN GOLDFARB

PHOTOS BY ALEXANDRA HOOTNICK

CLINT POGUE SPENT 2020 grieving. There was, that pandemic summer, much to lament — the viral deaths, the shuttered businesses, the shredded social fabric. In addition to the headlined horrors, though, Pogue mourned another, more obscure tragedy, one that he faced with minimal public attention and support: the collapse of the Behren's silverspot butterfly.

The Behren's silverspot is

the color and size of an apricot. It's a fritillary, one of a group of butterflies whose name derives from the Latin word for "dice box," perhaps owing to the intricate dots that mark their wings. The Behren's once sailed through the fog-shrouded prairies that fringe California's northern coast, sipping the nectar of goldenrod and asters. Over decades, however, development consumed its meadows, and invasive

plants squeezed out the early blue violet, the caterpillars' sole food source. Today, just one population endures, in Mendocino County. And Pogue, a biologist with the U.S. Fish and Wildlife Service, is the person primarily responsible for saving it.

Every year, Pogue and his colleagues survey the Behren's silverspot, much the way scientists survey butterflies everywhere: They walk. Back and forth, through reedgrass and thistle, the Pacific glinting beyond, scanning for the silvery flash of their underwings. Pogue launched his 2020 surveys in early July, as the world hunkered down indoors and the silverspot's spiny caterpillars metamorphosed into winged adults. He didn't see any butterflies that month, or in August or September. One biologist *did* glimpse a silverspot that summer, but the sighting occurred outside of a formal survey, so it didn't technically count. The

official tally was zero. Such surveys are imperfect, yet it seemed conceivable that just a single Behren's silverspot remained on Earth — an *endling*, the final, lonely member of a species on the brink.

The silverspot's disappearance was hard on Pogue. Although a coalition of agencies and nonprofits worked on its conservation, he was the species' recovery lead. His job description was to ensure the butterfly's survival, and he feared he might fail. "Looking week after week for butterflies, and not seeing them and not seeing them, it's disheartening and scary," he told me. Yet if the collapse wounded him, it also galvanized him to adopt a new approach, one that may yet save his beloved, obscure species.

OVER THE LAST CENTURY, researchers have calculated, human activity has accelerated the natural rate of vertebrate

species extinctions up to a hundredfold. And while insect data is notoriously sketchy, the spineless masses may be in even rougher shape: According to one controversial analysis, insects are going extinct eight times faster than birds, reptiles and mammals. The West's butterflies epitomize this trend. In one study, ecologist Matt Forister and his colleagues sifted through more than 40 years of butterfly counts across the West and found that surveyors glimpsed 1.6% fewer every year. And such incremental declines can compound quickly. Forister suggested visualizing a mountain meadow spangled with butterflies, then returning two decades later to find nearly 30% of them gone. "That's a massive reduction in the number of individual pollinators flying around," he told me.

Even so, most of our conservation efforts are directed toward saving the furry and the warm-blooded. Wolves, bears and other megafauna attract substantial constituencies and funding for research; not so the Nevada cloudywing or the Uncompahgre fritillary. Anti-insect discrimination is so strong that entomologists have a term for it: "institutional vertebratism."

Institutional vertebratism pervades America's state and federal agencies. According to Scott Black, executive director of the nonprofit Xerces Society for Invertebrate Conservation, many Western states don't grant their wildlife departments clear

authority to protect insects. Although insects account for an estimated 75% of earth's animal diversity, vertebrates outnumber them on the U.S. Fish and Wildlife Service's threatened and endangered species list by more than four to one. Among the 50 Western butterflies that Forister deems most imperiled, just 15 receive federal protection.

Even those insects that *have* landed on the list struggle to garner adequate support. In 2018, for instance, the federal government spent just \$45,000 on Behren's silverspot recovery. "I feel like that's what I'm doing all the time — chasing down pots of money here, pots of money there," Pogue said. Other butterflies, like the Myrtle's silverspot and the Uncompahgre fritillary, received still less support.

But while more funding would surely help, it isn't likely to arrive without a broader shift in how we perceive insects. Consider the Behren's sister subspecies, the threatened Oregon silverspot, which the U.S. Fish and Wildlife Service has been work-

ing to conserve for longer. In 2018, it received around 10 times as much funding as the Behren's. Today, the agency and its many partners pull and burn weeds, rear silverspots in captivity and even train dogs to sniff out their caterpillars. Although their efforts have so far kept the subspecies from oblivion, most of its five remaining populations continue to decline for reasons that remain murky even to scientists. Perhaps it shouldn't surprise us that a half-million-dollar annual recovery budget — the median cost of a home in Portland — is inadequate to reverse the century-long decline of the Northwest's coastal prairies.

"If I had \$5 million placed in my lap tomorrow, the things that we could accomplish as a team would just be incredible," Samantha Derrenbacher, the Oregon silverspot's recovery lead, told me. "But my hands are tied with how much we can do on a yearly basis." We have yet to treat butterflies and their brethren as "charismatic microfauna," as Derrenbacher put it, as

glorious in their way as condors and cougars.

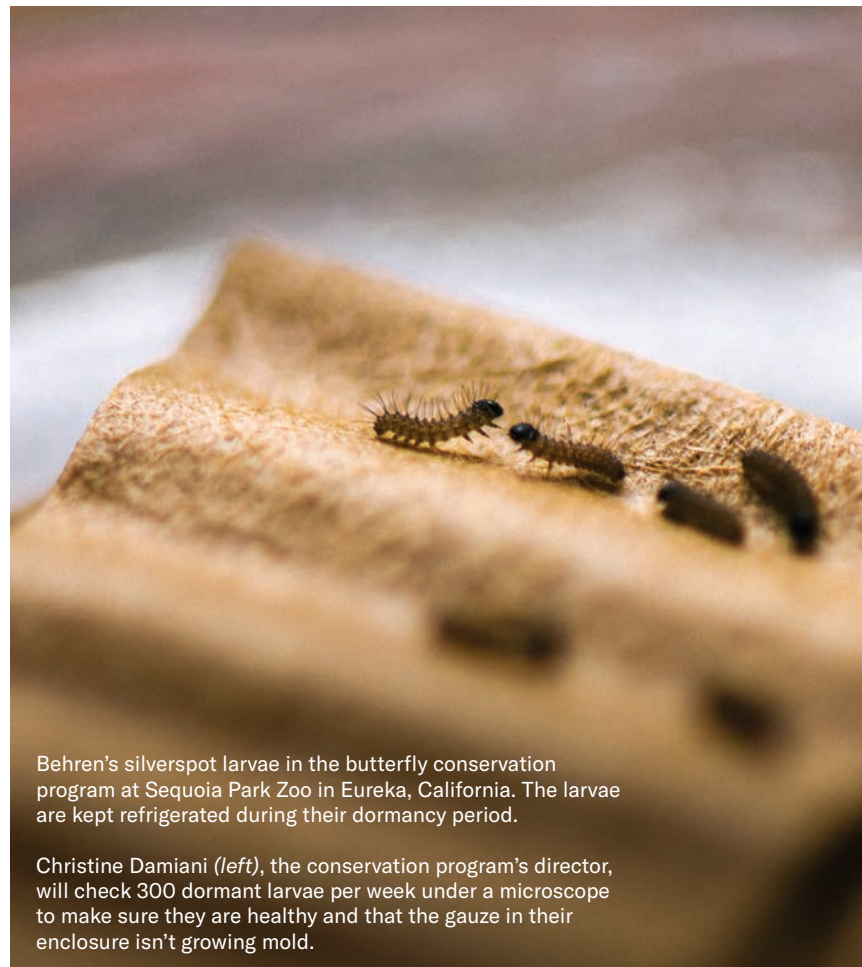
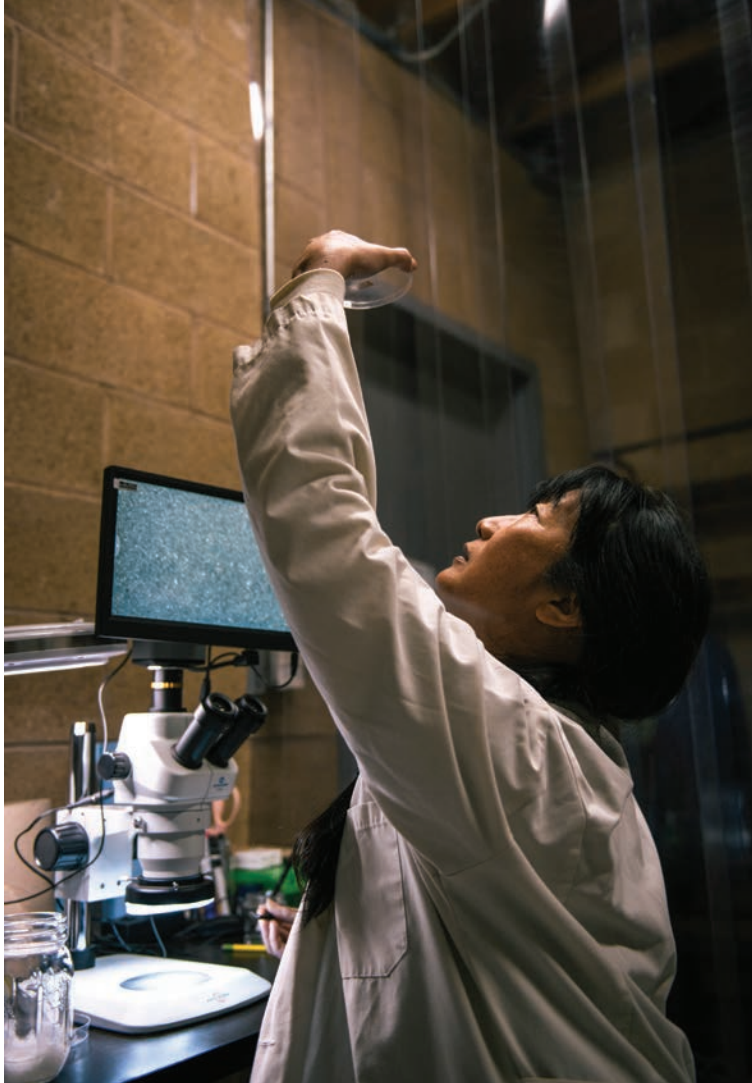
EVERY SPRING, Behren's silverspot caterpillars form a tough sepia pupa, drawing leaves around themselves with silk. The metamorphosis that occurs within this chrysalis is weird and grisly: Behren's caterpillars, like the larvae of all butterflies and moths, essentially digest themselves, melting down into a protoplasmic sludge that retains only a few precious groups of cells, known as "imaginal discs." These cellular seeds will, weeks later, sprout into the legs, wings, antenna and other structures of an adult butterfly. Incredibly, imaginal discs retain memory: Scientists who exposed caterpillars to a certain scent and then shocked them found that adult moths later avoided that same scent.

This concept — a thorough transformation that nevertheless recalls your past — resonates with Clint Pogue, perhaps because he grew up in an insular corner of southeastern Missouri



Christine Damiani, director of the butterfly conservation program at Sequoia Park Zoo, and Clint Pogue, a biologist with the U.S. Fish and Wildlife Service, at the coastal prairie in Mendocino County, California.

Behren's silverspot butterfly habitat in Mendocino County.



Behren's silverspot larvae in the butterfly conservation program at Sequoia Park Zoo in Eureka, California. The larvae are kept refrigerated during their dormancy period.

Christine Damiani (*left*), the conservation program's director, will check 300 dormant larvae per week under a microscope to make sure they are healthy and that the gauze in their enclosure isn't growing mold.

that few ever leave, only to end up in California; or perhaps because he was a botanist whose love for plants led him to lepidoptery. "I've changed a lot in my life," Pogue told me. "Sometimes, to fully change, you have to break down completely to your core values or tenets — and those are your imaginal discs."

Likewise, the crusade to save the Behren's silverspot may be rising from the goo of institutional vertebratism. Soon after Pogue's tragic 2020 surveys, he began to contemplate drastic measures. Fish and Wildlife and its collaborators had spent years attempting to restore the butterfly's habitat on a shoestring — fighting weeds, planting violets, even deploying livestock in lieu of grazing elk — yet it still crashed. Meanwhile, the Oregon silverspot, though hardly

thriving itself, had benefited from captive rearing programs, in which entomologists hatched eggs and raised caterpillars in the sheltered confines of zoos. Perhaps a similar program could boost the Behren's numbers and preserve it from extinction. Pogue simply needed to find a few butterflies, if any existed.

In 2021, Pogue and his colleagues focused on a new meadow, and this time spotted almost 50 Behren's silverspots. The entire population could still land on your forearm, yet it meant that the butterfly wasn't immediately doomed after all. Pogue captured seven females who'd already mated and brought them to the Sequoia Park Zoo in Eureka, California, to lay their eggs. The zoo's butterfly program director, Christine Damiani, found herself entrusted

with being midwife to an organism that had never before been raised in captivity.

As in nature, Damiani discovered that each phase of the Behren's yearlong lifecycle brought a new hazard. The pinhead-sized eggs grew mold, and every violet leaf the caterpillars devoured — 16,000 all told — first had to be hand-picked, inspected and triple-washed to ensure its quality. As 2021 rolled into 2022, attrition eroded the insect's ranks. Pogue's seven females laid around 3,000 eggs, which hatched into 1,500 caterpillars. Only 250 survived the winter, which then formed 110 pupae full of ooze and imaginal discs. The overwhelming sense of responsibility that gnawed at Pogue found a new host.

"Every life stage, I worry about them," said Damiani, who

took to calling herself the Mother of Caterpillars. "Are they too wet? Are they too dry? Am I not going to have enough food for them all? Oh my God — what if I can't do this?"

In summer of 2022, Damiani and some volunteers drove the surviving pupae to the same coastal prairie where Pogue had collected their mothers. They hung them in outdoor enclosures, checked them each day, and released any butterflies that emerged overnight. In the end, 80 new silverspots drifted forth to breed — a little more charismatic microfauna in a world sorely lacking it. "What more rewarding job could you have than trying to reverse the extinction of a species?" the Mother of Caterpillars said.

For Pogue, the releases felt more like a first step than a con-



clusion. The butterfly's survival, like that of so many others, remained precarious, and the cadre of people devoted to it was still tiny and beleaguered. What's more, their success had ironically made their burden even heavier: In the second year of the breeding program, Damiani had coaxed four times as many caterpillars into existence, which meant four times as much tedious leaf-picking and washing. Yet the grief Pogue felt in 2020 had hardened, chrysalis-like, into resolve. Recovering the Behren's was "decades or more away," he wrote on his Instagram page, @imaginal_discs, "but today is a milestone and an achievement." Thousands of species stumble closer to extinction's cliff daily; the Behren's silverspot had flitted a few wingbeats away from the edge. ☀

POEM

Scarlet Paintbrush

Garrett Hongo

Castilleja miniata grows in dry marshes, open woods, and meadows
In a range from Northern California through Eastern Oregon and the Cascades.
My cousin, just married, came upon a field of them while hiking around Mt. Rainier.
She posted a selfie on Facebook, she and her husband both ruddy-cheeked,
Facing a brisk wind, their hair tousled, making whips like florets of paintbrush
Dancing around coronas of pure happiness visited upon them by the Everlasting.

And, one summer, I saw a field of paintbrush bent by a flat heel of wind
Sent from a black thunderhead scudding over Fish Lake near McKenzie Bridge.
They are alive in memory from when I drove to my brother's summer camp
On the southeastern edge of Mono Lake where he trained his string of bird dogs.
There were patches of paintbrush popping up along a streambed, dandles of red
Rising from dry ground, surrounded by salt beds, tufa, and black lava sands.

In 1944, internees at Tule Lake gathered the blossoms to pound into paste,
A dye they mixed in *chawan* for painting flowers on burlap they'd scrounged
To make humble sleeves for chopsticks they'd fashioned from scrap pine,
A decorous touch at mealtimes while incarcerated during World War II.
Did Uncle Mas tell me this? At 95, the last time he'd visited? Away at college
In Stockton when war broke, he got rounded up by Executive Order 9066.

Over a century ago, in 1873, a shaman made a like paste from paintbrush blooms
To dye the red tule rope he wove for a sacred circle around the Ghost Dance
Of 52 warriors who would make their stand against 400 U.S. soldiers
And cavalry sent to remove the Modoc from the lava beds of their native land.
The rope was said to make them invisible, that their dancing would overturn
The Universe, exiling the whites, restoring a people to where they belonged.

The next morning, a thick tule fog rose from the land, engulfing the crags and trenches
Of the stronghold where the warriors hid, making their movements invisible.
After many days, the Modoc were victorious, the soldiers and cavalry rebuffed,
But more came and the medicine of the paintbrush faded, four Modoc were hanged,
And the rest removed to reservations in Oregon and Oklahoma, a scattered people.

My friend, their descendant, retold this story on my deck in back of my house,
Invoking the fragile promise of protection by the paintbrush, the sleeve-like florets
Of them inviolate in memory like monks gently genuflecting toward the West
Through the firedamp of grey air and the final smudge of scarlet that was the sun.

Seeking sanctuary

Climate change refugia can shelter wildlife as the planet warms.

BY JONATHAN THOMPSON

ILLUSTRATION BY HANNAH AGOSTA

SOME 800,000 YEARS AGO, the Earth's climate cooled, and huge glaciers invaded what is now the Western United States. Areas once teeming with life became uninhabitable to many species. But most of them weren't driven to extinction. Instead, prehistoric climate refugees migrated to regions that for one reason or another were buffered from the cold and the ice — from the Southwestern desert lowlands to sheltered, temperate nooks in the Pacific Northwest.

When most of the glaciers finally receded for good about 12,000 years ago, the floral and faunal refugees slowly made their way back to their ancestral homelands and settled in their current ranges. The natural sanctuaries had served as a sort of temporal ark, ferrying myriad creatures across the Ice Age.

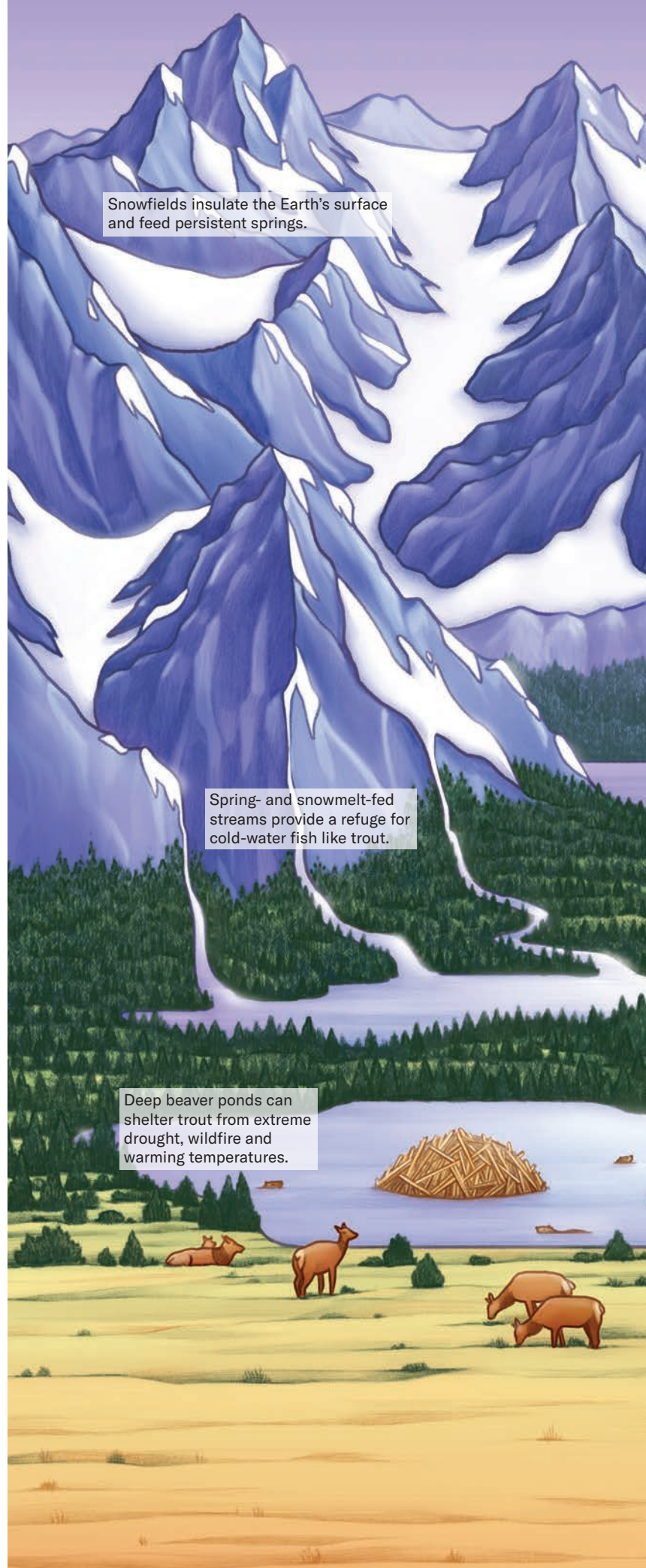
Now, as human-caused climate change warms the planet, many species are likely, once again, to seek out refugia — areas shielded from warming temperatures and associated effects that can shelter the next generation of climate refugees from heat, fire and extreme weather and thereby help protect biodiversity. Scientists are now eagerly identifying and mapping these places — and pushing policymakers to prioritize their preservation — in order to keep

them from being destroyed by development or overuse.

They have their work cut out for them. In a study published in *Frontiers in Ecology and the Environment* in January, researchers found that only a small fraction of climate refugia are currently protected in the U.S., though the Biden administration's campaign to conserve 30% of U.S. lands by 2030 offers hope of saving more. Private, as well as public, lands need to be protected.

Preserving refugia alone won't be enough; further warming must also be kept in check. As temperatures continue to climb, fewer and fewer places will be safe from global warming's calamitous effects. And many species might suffer the same fate as the woolly mammoth did: Unable to escape from rising temperatures and increasing moisture when the last Ice Age ended, the cold-weather giant and many other megafauna vanished from the Earth forever. ❁

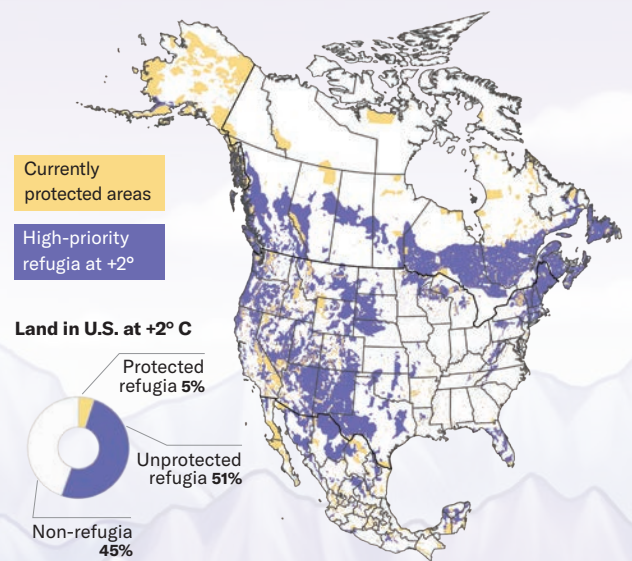
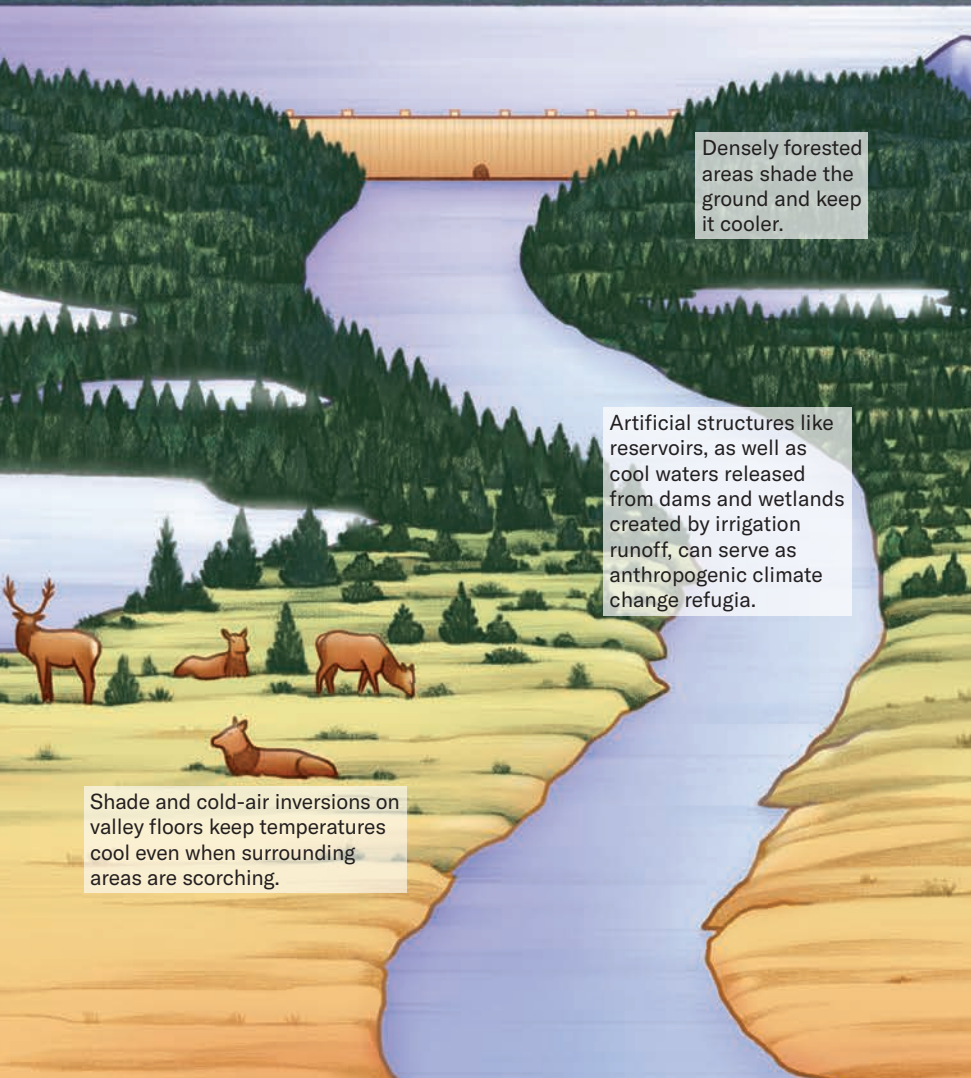
SOURCES: "Integrating climate-change refugia into 30 by 30 conservation planning in North America" by Sarah P. Saunders and Joanna Grand et al; "Managing Climate Change Refugia for Climate Adaptation," by T.L. Morelli et al; "Late Quaternary dynamics of Arctic biota from ancient environmental genomics," by Y. Wang et al; "Past Climate and Vegetation Changes in the Southwestern United States," by R. Thompson and K. Anderson; "Of glaciers and refugia: a decade of study sheds new light on the phylogeography of northwestern North America," by A.B.A. Shafer et al; Audubon; U.S. Forest Service; U.S. Geological Survey; INSTAAR; Refugia Research Coalition.



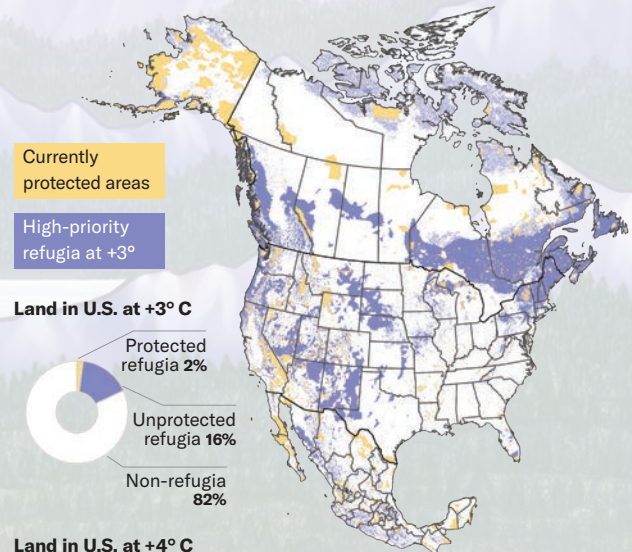
Snowfields insulate the Earth's surface and feed persistent springs.

Spring- and snowmelt-fed streams provide a refuge for cold-water fish like trout.

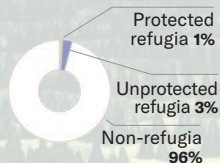
Deep beaver ponds can shelter trout from extreme drought, wildfire and warming temperatures.



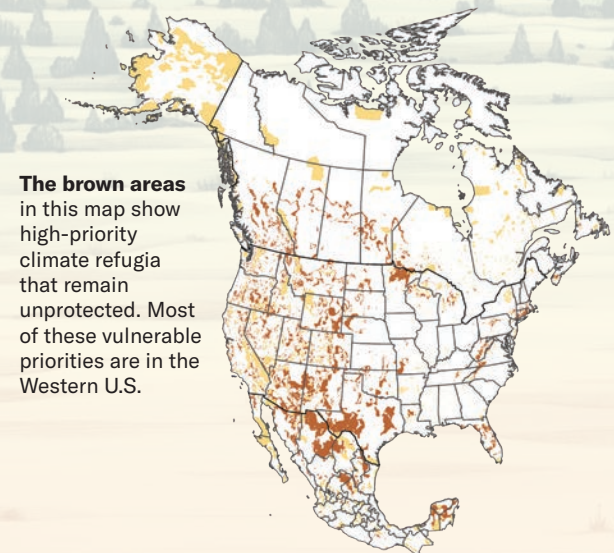
If global warming is kept to 2 degrees Celsius (3.6 degrees Fahrenheit) or lower, more areas can serve as climate refugia, as seen in the above map of high-priority refugia ...



Land in U.S. at +4° C



... but if the temperature rises by 3 (as in the above map) or 4 degrees Celsius (5.4 degrees Fahrenheit), the high-priority climate refugia will shrink, making their preservation that much more critical.





Tara Thomas & Greg Hanscom

I want to share my heartfelt thanks with you, friends.

We've just concluded our spring fund drive, and we're beyond grateful for your steadfast support of *HCN's* journalism.

That doesn't mean our work is done; it's never finished for our writers and editors, of course, because they're always on the lookout for new stories that illuminate the important issues in our region. But it's not done for our fundraising team, either. We still have \$972,000 to raise from donors before Sept. 30, the end of our fiscal year, to fund all the work that lies ahead.

But none of these pages would be possible without you. So when we say, "**Thank you,**" we really mean it.

I think it's important to be transparent with you, the *HCN* community, about both the good news and the obstacles we face as a nonprofit organization. We've had some wonderful recent wins, with our journalism winning awards and having a positive impact on the ground in communities across the West. We've received generous support not only from readers, but from foundations, too, and we're well on our way toward rebuilding our website and IT infrastructure. But we're still falling short when it comes to the larger individual donations that we rely on to make our budget.

A remarkable 76% of our revenue comes from readers just like you. **If you haven't yet made a contribution to support *HCN's* essential work for the West, please consider doing so today.** If you already have, or plan to give at another time of year, thank you again!

With warmth and gratitude,

Greg Hanscom

High Country News

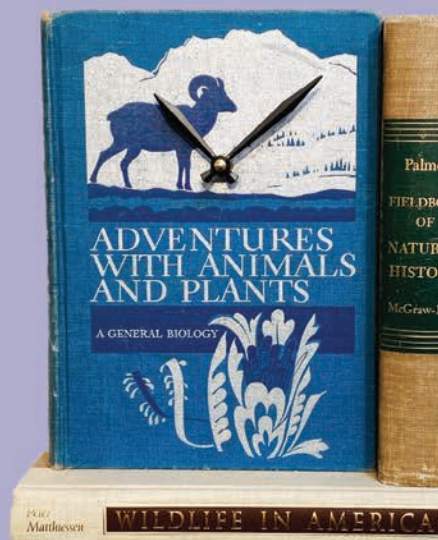
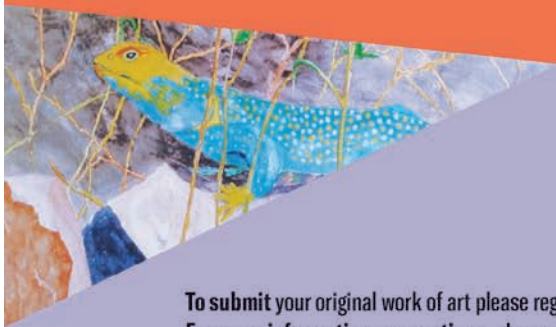


LAST CALL FOR ART & ARTISTS

Submission deadline, May 15th

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To submit your original work of art please register at: hcn.org/art-auction
For more information or questions, please see our info page:
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HCN

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Rick Strachan | Lopez Island, WA

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James Riegel | Meeker, CO
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Jalen Bazile and Rachel Olzer at Elevenmile Reservoir near Deckers, Colorado. Adam Andres Pawlikiewicz Mesa

DEAR FRIENDS

Staying plugged in

High Country News staffers have been crisscrossing the West in recent months, meeting with supporters in California, Utah, Colorado, Arizona, Oregon and a few other places along the way.

Getting to visit with our friends in person is not only important for keeping our community informed and engaged with *HCN*—it's a good time, too! Luckily, with our Board of Directors meeting this month in Albuquerque, we have a good excuse to put out a wider invitation to an in-person event.

If you're in the area, please join the board and staff on May 19 for a panel discussion open to all readers and friends. Laura Paskus, environmental producer for New Mexico PBS and a former assistant editor at *HCN*, will be leading the conversation. Know someone who seems like they'd be an *HCN*-type person if only they got an invitation? Bring them along! Visit hcn.org/abq-may-19 for more details about the event.

Meanwhile, this page, "Dear Friends," will help keep you plugged into what's happening around here each and every month.

We've shared community news, invites to virtual events, requests to fill out reader surveys, solicited your ideas (where should our archives go?), shared fun things like the summer reading contest (stay tuned for this year's challenge!) and published Q&As with staff, introducing you to new folks and opening a window into our thinking.

But I want to hear more from you. My door

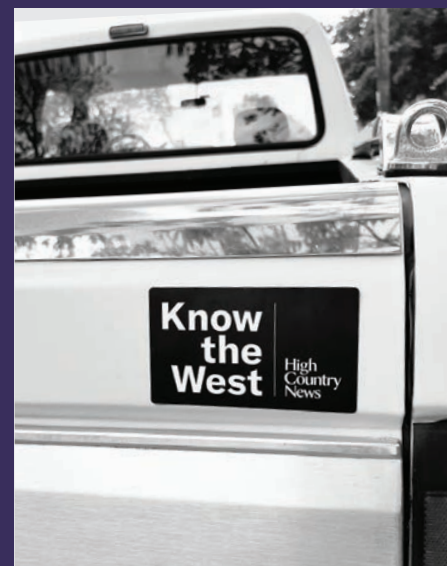
is always open at dearfriends@hcn.org if you have community news to share. Tell me about friends of *HCN* who are doing some good, people doing something special in their Western communities or other inspirational happenings from across the region. I'm also going to put more questions directly to you on a monthly basis. Nothing complicated, like whether thinning is the same as logging, just casual, low-stakes queries.

Which brings me to my question: Do you have a *High Country News* bumper sticker? If so, can you send me a photo? We're running low on our current stickers, and I'm curious about what's out there in the wild. If you don't yet have *HCN* emblazoned on your car, rack, roof box, cooler, etc. — email me and we'll get you something to fix that. Meanwhile, what is your favorite bumper sticker? I'm partial to "Too cold for them, just right for us," which I picked up recently at Tourist, the local gear shop in Santa Fe, and "You gotta be pretty to live in the city," which I spotted years ago on a Steamboat Springs city vehicle. It remains inscrutable to me, which is probably why I like it.

A well-placed, interesting sticker can spark a conversation or forge an instant connection, and I'd love for our next lot of stickers to bring that magic to trailheads, take-outs, lift lines and campsites across the West for years to come. *HCN*'s finest ambassadors are members of our community, so who knows what works on a sticker better than you do? Send us what you got!

Michael Schrantz,
marketing communications manager

HCN staffers and supporters meeting across the West. **Marissa Garcia / HCN**



Michael Schrantz / HCN

Question of the month

Do you have an *HCN* bumper sticker? Let us know which one you have or send us a photo. Don't have one? Send us your favorite sticker tagline, and we'll send you a fresh sticker hot off the press as soon as we can.

Send your answer or photo to dearfriends@hcn.org.

HCN in ABQ

Join *High Country News*' Board of Directors, staff and friends in Albuquerque on May 19 for a panel discussion hosted by **Laura Paskus**, a former *HCN* assistant editor and current environmental producer for New Mexico PBS. She'll be joined by **Jonathan Juarez-Alonzo**, of Youth United For Climate Crisis Action (YUCCA), **Samantha Ruscavage-Barz**, legal director of WildEarth Guardians, and **Kayley Shoup**, of Citizens Caring for the Future, in a conversation about the unsustainable and exploitative fossil fuel extraction happening in the Albuquerque region.

Visit hcn.org/abq-may-19 for more details and to RSVP.



Micah McCarty carries his art into the woods outside Neah Bay, home to the Makah Tribe in northwest Washington.



The Artist and the Harpooner

In Micah McCarty's art, the past and future
are one, and the whales never left.

By Josephine Woolington | Photos by Mason Trinca



A

T THE SOUTHERN CUSP of Cape Flattery in Washington, off a long sandy beach tucked away from the Northern Pacific's rough seas, seven dancers hide. They crouch inside the belly of a puppet, in the shape of a humpback whale. They move the whale's fins and flukes. Feathers spew from its blowhole. Then, one by one, they crawl out through its mouth, wearing shawls and sea serpent headdresses. Slowly, they look around. High above the dancers, perched on a cliff, a Thunderbird puppet lurks, waiting. A crowd watches at Wa-atc̓h, one of the people's five villages — Waʔač̓, in the language of the Qʷidiččaʔa-t̓x̓, the people of the cape.

Thunderbird swoops down and snatches the whale puppet in his talons, just like he taught the Qʷidiččaʔa-t̓x̓ to do in the beginning, when they first hunted the giant sea mammals.

Chief Hiškʷi-sa-na-k̓ši-ł, or Hishka, stands in front as the dancers perform the last song of the potlatch near the Wa-atc̓h River on a late-summer evening.

That was only three generations ago, not long after the U.S. government sent so-called Indian agents to assimilate the people

of the cape, now known as Makah.

Hishka, who was born in 1845, harpooned humpbacks and gray whales from canoes he carved himself, like other Makah chiefs before him. He was among the last hereditary chiefs to do so. Commercial whaling drove the animals to near extinction, and, by the 1920s, the Makah voluntarily stopped hunting them. Meanwhile, state and federal conservation laws legislated the people out of their own coveted waters, where halibut, salmon, seals and whales sustained them — an entire nation — and made them wealthy. The tribe wouldn't hunt whales again until the late 1990s.

“He knew it was going to be different forever,” Hishka’s great-grandson, Micah McCarty, said, as he waited for paint to dry on a redcedar mask he’d carved in his woodshop in Neah Bay, home to the Makah Tribe in the northwesternmost corner of Washington. The puppets, McCarty thought, were a way for Hishka to “commemorate and honor” Makah identity, “who we are and where we come from.”

Hishka made the whale puppet from canvas and linen, tying cedar branches together in big hoops to give it the right shape. With tall ship rigging, he engineered a system of ropes and pulleys so the Thunderbird could fly down from the cliff and pick up the whale. “It was a theatrical thing,” McCarty said of the performance, “to send a message to the people that we’re still gonna be who the fuck we are.”

In the decades after Hishka’s ceremony, the United States government banned potlatches, the central political, social and economic system of the Makah and other Northwest Coast peoples. During potlatches, chiefs gave away food, money and artwork that came with rights to songs and stories owned by families. Elaborate art, including the whale puppets, was reserved for these ceremonies. Under the imposed U.S. regime, with the potlatches outlawed, McCarty’s family couldn’t create new puppets or other ceremonial artwork. Still, songs and stories survived.

Then, in the summer of 2010, the Makah hosted Tribal Canoe Journeys, an annual celebration held by the region’s tribal nations. McCarty, who was serving on the tribal council at the time, spent five weeks building a whale puppet with his dad, John. Along with other tribal members,

Micah McCarty (*facing page*) pauses to look at the scenery as he sweeps wood chips off the 12-foot canoe in his front yard in Neah Bay, Washington. Below, in his woodshop, McCarty carves a mask amid the finished and unfinished masks and traditional tools that fill his shop.



father and son performed with a 30-foot-long black, white and red puppet in an elaborate display of song and dance. Hishka’s puppet, known only from memories, became something present, tangible.

Since then, McCarty told friends and family that he wanted to make another puppet to honor his great-grandfather and Wa-atch village. But for more than a decade, life and other projects got in the way.

That changed last August, when he finally started: Building two puppets, one for relatives from the Pacheedaht First Nation on Vancouver Island, and the other for McCarty’s five children. “It’s a huge family pride thing,” he said, and smiled. “I don’t know too many families that have that kind of history.”

IN HIS WOODSHOP next to his home in Neah Bay, McCarty stood with a chisel in his hand, studying a partially carved moon mask made of Alaska yellow cedar. Around him, drawers burst with tools. Shelves held unfinished paddles, a bentwood box, a Thunderbird headdress, knives, chisels, and scraps of redcedar, yellow cedar, yew, alder and whale bone.

His 52-year-old wrists needed a break after chiseling. He rummaged for his drill. “My son tries to come in and clean my stuff every now and then, and then I don’t know where anything is,” he said, laughing. “I’ve got organized chaos in some ways.”

With the drill, McCarty cut through the creamy yellow mask’s elongated mouth. Then he grabbed his sander.

“I’m gonna fire it up,” he warned, putting on an N-95 respirator. Cedar’s smooth, straight grain is ideal for carving, but the dust is toxic. One of McCarty’s mentors, Carl Edgar, an elder

from Ditidaht First Nation on Vancouver Island, used to stay with him for Makah Days, the tribe's annual summer celebration. The last time Edgar visited before he died, McCarty woke up around 3 or 4 a.m. to Edgar wheezing and hacking up phlegm.

"Hey, Micah," he yelled. "I want you to come take a look at this."

McCarty got up to see.

"It's about the color of cedar, isn't it?" Edgar said. "You be careful."

So McCarty always wears a respirator when he sands. As he carves, he carefully blows cedar flakes down and away from his face.

Once he finished sanding, the mask was soft as silk and the color of butter. It's made to honor moonwatcher traditions during Makah whale hunts and will be sold to a Tlingit elder. Moonwatchers were like living almanacs, McCarty explained, tracking lunar cycles and seasons to time spring hunts just right. "Whalers could live their lives until it was time to get ready, and the moonwatcher would say, 'The moon's changed,'" McCarty said.

His art tells stories of the rugged landscape where his family has lived for thousands of years. In one painting of abstract mountains rising from the sea, McCarty explained that the teal paint represented how his relatives hunted gray whales close to shore, where the green water turned blue. In another painting, Thunderbird pulls a whale from the water, as a white whale, depicting its spirit, drifts upward toward a waning crescent moon. "It's really important to usher the spirit of the whale into the next world in a way that it's accepted by the society of whales that have been properly hunted," McCarty said. Makah whalers spend



months in rigorous spiritual and physical preparation before hunting.

McCarty went back to work on the moon face. He chiseled and chain-sawed, using both hands to avoid a trip to his chiropractor. For more than three decades, he's made his living this way, creating masks, canoes, paddles, headdresses, glass etchings, bentwood boxes, halibut hooks, plaques and paintings. In the early 2000s, he also served nine years on tribal council, including three as chairman.

What we call art has been, for generations of McCarty's family, a way of life, a visual language that carries knowledge, stories and privileges. Artists, like his great-grandfather, Hishka, have endured smallpox epidemics,

Art is "the continuity of culture. (It's) keeping the living breath of our ancestors alive."

Micah McCarty, photographed outside of Neah Bay (above). McCarty's daughter Priscidia, 21, works on a painting in his home (facing page).

potlatch bans and assimilation efforts, including a more than 20-year ongoing legal battle initiated by conservationists over whaling. Despite the 1855 Treaty of Neah Bay, which secures the Makah's right to hunt, whaling has been forbidden.

To preserve his family's literacy of the land and sea, McCarty creates. "When I was growing up in school, I was drawing Thunderbirds and whales on my math assignments," he said. Art is "the continuity of culture." It's "keeping the living breath of our ancestors alive."

Most of McCarty's five children paint, carve, draw or bead, blending modern designs and mediums with their own styles and interpretations of tradition. His younger brother, Alex, his sister, Maggie, and many of his cousins, nieces and nephews also create.

"It's a whole family of artists," Alex said. His two children are artists, too. "It's almost comical."

THE MAKAH are the southernmost of the Nuuchah-nulth peoples of western Vancouver Island, although their land-based territory is across the present U.S.-Canada border. Many of McCarty's relatives descend from Ditidaht and Pacheedaht First Nations, where they made art that is distinct from the work of Northern nations, like the Tlingit, Haida and Tsimshian.

Compared to the structured Northern style, called formline, Makah and Nuuchah-nulth art is fluid. Bold, flowing lines and deep cuts, at the corners of eyes and elsewhere, give three-dimensional depth to carvings, Alex McCarty explained. He mentioned pieces from Ozette, a former Makah village about 16 miles south of Neah Bay, where tribal members and archaeologists excavated more than 55,000

artifacts in the 1970s, many of them over several centuries old. Some Ozette carvings, including a whale-bone club with a human-like face engraved on its handle, have sloping triangular cuts that come to a point, like an inverted pyramid.

Alex, who is 48, chiseled a yellow cedar raven headdress in the carving studio of Evergreen State College in Olympia, where he teaches woodcarving and Pacific Northwest Indigenous history. Like his brother, he has carved for nearly 30 years, and incorporates Makah, formline and Coast Salish elements in his carvings, paintings and screen prints.

Alex grew up with their dad on the Makah Reservation in Neah Bay, while Micah lived in Olympia with his mom. Micah spent every summer fishing with them, and they listened to their dad's stories about their grandparents and great-grandparents. Not many people in Neah Bay made artwork at that time, Alex said, but as a young kid, he watched his parents carve pieces to give away at family parties.

When the U.S. and Canadian governments banned potlatches in the 1880s, Makah art shifted. It transformed from a critical societal function to cheap trinkets for white tourists. "When they took that structure away, it changed our work substantially, and it changed the functionality of our work," Alex said.

In the 1960s and '70s, after potlatch bans were lifted, influential Makah and Nuu-chah-nulth artists emerged, like Greg Colfax, Art Thompson, Joe David and George David. They placed their work in fine art galleries and paved the way for a new generation of artists.

After high school, Micah McCarty moved to Neah Bay in 1990 and started carving. When his younger brother visited,

Micah handed him a mask to paint. But traditional art didn't interest Alex until a few years later, when the Makah Cultural and Research Center hired him to create a diorama of the Ozette village. He immersed himself in Makah history and hung out with Greg Colfax, or with his older cousin, Spencer McCarty, drinking coffee and watching them work. Alex's mentors pushed him to make new designs that were both innovative and historically accurate. "That's when it becomes a visual narrative, when you're able to create something that has a function, and it says something," he said. "It's a visual narrative that connects to our oral traditions."

TOOLS, WOOD CHIPS and two massive drift logs, one destined to be a 12-foot canoe, covered Micah McCarty's front yard.

Brandon Eaton, McCarty's 38-year-old nephew, let out an exhausted, high-pitched sigh. He stood hunched over the log,

chipping chunks of wood off it with an adze on a warm evening in late August. Sweat dripped from his brow.

"Looking good," McCarty told him as he circled the fir, inspecting Eaton's progress.

"I'll give you some gloves if you want, so you won't wreck yourself for tomorrow," McCarty said. Eaton doesn't carve much, and fir is especially challenging to work with because its wood is denser than cedar. "If you wanna switch it up and change your pace, you can do this," McCarty said, as he grabbed a chisel and pounded it with a mallet to glide the flat blade across the fir, removing wood in long, thick strands.

Already, after only a few days' work, it looked like a canoe, its tips and bottom tapered. Part of what would become the bow stretched upward. No bolts, screws or measuring tools necessary; just a log cut, chiseled and chain-sawed by generations of memory. In a few more weeks, it would be finished — a dugout

canoe, painted red inside — and displayed at the Seattle Center, four hours away, as part of a temporary art installation.

McCarty learned to carve his family's canoe shape from his cousin, Aaron Parker, who learned from their grandfather, Jerry McCarty, who learned from his father, Hishka.

Jerry was among the last Wa-atch chiefs to carve canoes. When he was a child, Hishka taught him how to launch a harpoon from a 36-foot canoe into a mammal of similar length. Jerry, who went to ministry school and became one of the Makah's most fluent English speakers, helped the community transition following the Indian Reorganization Act of 1934, when Native nations were pressured to adopt tribal constitutions and form elected councils. He was the tribe's first chairman; his daughter, Hildred McCarty, was council secretary and created the first Makah language dictionary. Both were signatories to the 1936





Clockwise from top left: Brandon Eaton, 38, poses in front of one of the two drift logs in Micah McCarty's yard, where he's helping McCarty carve one of them into a canoe. Spencer McCarty, 62, photographed on Neah Bay. Priscidia McCarty, 21, photographed outside of Micah McCarty's home. Alex McCarty works on a yellow-cedar raven headdress at The Evergreen State College's carving studio in Olympia, Washington.

The Makah tribal symbol is seen on a building in Neah Bay (*facing page*). The image, which shows Thunderbird holding a whale in his talons, symbolizes the whale's importance to Makah identity.

Makah Constitution, which gave the tribe more power to engage with the U.S. government but ended traditional hereditary government. And while Micah is proud of his family, he's struggled to reconcile his feelings about their participation in the colonial political structure.

"When I was first looking at it, I criticized it, and I didn't fully embrace that my grandfather is a signatory, and my Auntie Hildred is, too," he said. Now, though, "I kind of look at it in a way where survival instinct might have kicked in."

His grandfather, he explained, tried to succeed within an imposed system while preserving his Makah identity. "There was a time when my grandpa wasn't practicing much in the way of traditional whaling culture that he was raised in, but he did keep it," McCarty said. "We had Indian agents that were telling us we'd go to hell if we practiced that stuff."

For millennia, whaling tribes managed whale populations, understanding the reciprocal relationship necessary for both whales and people to thrive. But in the mid-1800s, a whaler from Maine found gray whales' birthing grounds off the coast of Baja California. He and other non-Natives slaughtered whales in the teal lagoons, and by the 1880s, just 2,000 remained — down from an estimated 24,000 whales at the turn of the century. By the late 1920s, so few migrated past Cape Flattery that Makahs stopped hunting them. In 1946, the International Whaling Commission was established and banned commercial hunting of gray whales, though it included an aboriginal subsistence exemption. In the United States, gray whales were listed as "endangered" in 1970, under a precursor to the 1973 Endangered Species

Act. They were further protected in 1972 by the federal Marine Mammal Protection Act.

McCarty was born into this era of federal conservation laws, when whaling traditions weren't practiced but preserved through stories. In his 20s, he was a tumbleweed, following his interests wherever they took him, including two stints in Hawaii. Winter on the Big Island was a nice reprieve from Neah Bay's rainy skies, but once gray whales were delisted in 1994, and the Makah announced their intent to resume hunting, he came home.

"When Makah whaling became a reality, my roots really grounded me," he said. "I felt a magnetic lightning rod through my spine to my homeland to be a part of this."

The tribe has had one successful hunt, in May 1999. Journalists and animal-rights activists descended on the small and remote Neah Bay. Some protesters carried signs: "Save a whale, harpoon a Makah."

"When Makah whaling became a reality, my roots really grounded me. I felt a magnetic lightning rod through my spine to my homeland to be a part of this."

McCarty initially trained as part of the whale-hunting crew, but ultimately, inspired by his grandfather, he went into politics instead, to fight for Makah treaty rights. The crew left a seat open for him in the canoe, going out with seven men instead of the traditional eight.

In the nine years that McCarty spent on tribal council, the Makah navigated complex national and international laws, determined to whale again. McCarty traveled to Belgium, Russia and Japan and met both diplomats and whalers. He was on a committee in the Obama administration's National Ocean Council, and he still serves on the Makah Whaling Commission, following in the footsteps of his father, the commission's first executive director.

To McCarty, the treaty is being held hostage by non-Native conservationists who believe whaling has no place in the modern world. In 2002, a federal court ruled that, under



the Marine Mammal Protection Act, the Makah needed permission to hunt, despite their treaty — the “supreme law of the land,” according to the U.S. Constitution. The tribe submitted a request to the National Oceanic and Atmospheric Administration in 2005. After years of studies, public hearings and bureaucratic delays, NOAA is set to make a final decision sometime this summer. Under the current proposal, the tribe could hunt no more than 20 whales in 10 years, with strict rules regulating the hunts.

The process left McCarty jaded. He had thought he’d go whaling with his dad someday. But John died in 2015.

Outside his Neah Bay studio, McCarty gestured east. His workshop is below what’s known as “BIA hill,” after the Bureau of Indian Affairs, where he said one of the first white Indian agents lived in a white house that’s still standing. In the shadow of that house and hill, McCarty carves.

He recently started hiring family members, like Eaton, to help with projects. Over the years, Eaton has struggled in Neah Bay. He’s driven to carve and create art, seeking work from McCarty, whom he jokingly compared to *Karate Kid*’s Mr. Miyagi. “I wanna do more and be more,” Eaton said, chipping wood off the canoe.

McCarty hasn’t always been present in his family’s life. He was on council for much of his children’s youth. He worked long hours and traveled for weeks at a time. “I honestly could have been a better father and husband when I was on council,” McCarty said. “I did the best I could, but I was really dedicated to my job.” He couldn’t be a politician, artist, husband and father all at once, so after his third term, he stepped away. “I was promised a fourth straight term and a divorce,” he said.

AFTER HER DAD came home from council, Inanna K’w’owishč Tyee, who teathed on whale blubber from the 1999 hunt, observed him in his workshop. He’d put on Bob Marley, draw, carve and give her, his firstborn, designs to trace and color. Sometimes, he’d play old recordings of her great-grandfather, Jerry, explaining how her great-great-grandfather, Hishka, went out at sunset for humpbacks, paddling 15 to 20 miles into the horizon.

Tyee was a shy kid, and her dad’s political career felt like an inescapable force. But when she was 16, the family moved off-reservation to Olympia, and she gained a better understanding of his work, and what it meant to be Indigenous and Makah. She took art more seriously, learning from people like her dad, Uncle Alex and her cousin, Aaron Parker Jr.

Tyee, 24, studies geography at the University of New Mexico. She draws, paints and beads, incorporating Makah, formline and Coast Salish elements in her work. Last year, with her dad, she designed the five salmon species that now decorate the windows of Chief Seattle Club’s ʔálʔal Café in Pioneer Square. She also practices silversmithing and designs jewel-toned silk scarves, inspired by her aunt, Maggie McCarty, Micah’s sister, who taught Tyee how to merge style and tradition.

The McCarty name often felt like a heavy weight to carry. While Tyee is proud of her dad, calling him a “treaty warrior,” she sought her own identity. She wanted to get rid of the Scottish surname given to her family when the treaty was signed. Within Makah and Nuuchah-nulth families, some names are earned, like “Hishka,” which means “he makes the whale blow on the beach.” Others are formally passed down, both paternally and maternally, during potlatches, transferring

rights and knowledge. Names can also be created, so Tyee gave one to herself. “I wanted to make something different and new and still honor where I come from,” she said.

K’w’owishč means “the little one” in Makah, and Tyee means “great chief” in the Nuuchah-nulth region to honor her mom, who comes from Tsawout First Nation on Vancouver Island.

Growing up, Tyee soaked up stories her dad told her about the first whalers. But she noticed that the narratives often left women out. Whenever the tribe can whale again, it’ll be her brother, cousins or future sons out on the water, not her. So she’s been researching how Makah and Nuuchah-nulth women contributed to hunts. “There is a practice when the men go out whaling, the women are supposed to lay flat on the beach, or go indoors and be flat and still,” Tyee said, “because they are supposed to be tied and connected to the whale and the spirit of the whale to calm the (whale’s) body.”

She hopes to weave together a fuller narrative of whale-hunting preparation and rituals, maybe through animated watercolor to depict what’s now a controversial topic as something elegant and soft. “Not a lot of people understand (whaling), or think it’s necessary,” she said. “This is part of my heritage and family, and I have a right to it.”

ON A SUNNY AFTERNOON in November, McCarty sketched designs for whale puppets at his kitchen table. His 19-year-old niece, Shyla Wright, painted across from him. His daughter, Priscidia McCarty, rummaged through a collection of colorful necklaces that she’d made. Priscidia, 21, recently moved back to Neah Bay from Olympia. She’s McCarty’s “whale baby,”

as her dad likes to say, born two years and two hours after the 1999 whale’s time of death.

“How long have I been doing this, Dad?” she asked, trying to remember when she started beading.

“When your little baby fingers could figure out how to hold a bead and push them on,” he said. She smiled. “We started off with plastic beads with the littles,” Micah said.

“Then I moved up to glass beads,” Priscidia added.

Priscidia also draws and paints, but most of her work was lost in the chaos of the move. Her dad left the room and returned with a framed picture she drew when she was 14. It’s a colorful silhouette of a woman’s profile against a gray backdrop. Her rainbow neck muscles transform into roots. Floating eyes and mouths surround her.

When Priscidia was 13, the family moved from Neah Bay to Olympia. Classmates stared, asked where she was from, and doubted her Native identity until she showed them her tribal ID card. She went from hanging out at the beach with friends and cousins to being isolated, with only her siblings to talk to. “I just started doing art,” she said.

Drawing helped her transition from life on the reservation to life in the state’s capital. But it also held her back; the charcoal and graphite locked her in dark thoughts. Everything she created was sad, she said. And so not long before COVID-19 hit the United States, she took a break.

Then she met her current partner, who is also Makah and an artist. He inspired her to draw and bead again. The two, who are vegan, don’t think the tribe should hunt whales, though Priscidia understands why they’re fighting for it, for their treaty rights. It was a battle that

kept her dad away from home when she was young. She'd go to school, he'd go to work, and by the end of the day, they'd briefly say goodnight.

"It was really hard not being around him," she said. "But I knew he was doing it for the tribe and doing it for us."

Now that she's in Neah Bay, Priscidia wants to help her dad with house projects that he's put off. She wants to, simply, be around him. She also wants to spend time with her younger brother, Khephren McCarty. They recently collaborated on a paddle that he carved and she painted.

In the last few years, Khephren, who's 20, has carved paddles and masks with help from his dad. He'll work on the whale puppets with him, too. He was 7 years old when his dad and grandfather made the last one for Tribal Canoe Journeys, in 2010. He remembers crawling through the beginnings of the 30-foot puppet.

During the performance, Khephren and hundreds of others watched as his grandfather helped tow the whale puppet into a large tent outside Neah Bay High School. Micah's older cousin, Spencer, sang to awaken it. Smoke and eagle feathers exploded from the blowhole. The pectoral fins flapped. Then, four dancers emerged from the whale's mouth, one by one, including Micah. "After I saw that, I was pretty interested in trying to make stuff," Khephren said, "to try to carve and learn my culture."

A FEW YEARS AGO, Micah McCarty needed a cedar log big enough to make a totem for the Puyallup Tribe. The tree had to be at least 12 feet long and 3.5 feet wide, with a trunk free of branches to avoid knots, which are challenging to carve around.

McCarty's cousin has wood-gathering rights near



*To McCarty,
the treaty is
being held
hostage by
non-Native
conserva-
tionists who
believe whaling
has no place
in the modern
world.*

The small town of Neah Bay.

Mount Rainier National Park, so McCarty and Khephren woke up early and headed east on Highway 12. When they reached their destination, they found their tree: A 14-foot cedar log, not far off the mountain road, already felled by the wind, and, McCarty estimated, at least 900 years old.

"That thing was fucking huge," Khephren said, "pardon my language."

Father and son set up a pulley system, rigging lines to move the log — all 10,000 pounds of it — down to the road. Then, they leveraged it with a jack, lifting it up and onto a 20-foot flatbed trailer attached to McCarty's 1988 red GMC Suburban.

"It pushed that truck to its limits," Khephren said. "When we were going down the freaking mountain, oh my. We were just holding the brakes the entire time."

Woodworking felt daunting to Khephren when he was younger. He'd watch his dad carve, paint, etch, "whip up designs out of nowhere," and

wonder if he would ever have the same discipline and strength.

By 15, he could remove wood with a knife. He recently made his first *pook-ubs* redcedar mask for the Jamestown S'Klallam Tribe. Pook-ubs have sunken eyes and loose skin, and they wear conical cedar-bark whaling hats, depicting a whaler who was lost at sea. The whaler eventually washed ashore on his village's beach and was brought back to life. He blew a blessing on his fellow whalers so they wouldn't have to go through what he did.

Khephren wants to learn how to paint and weave, to experiment with modern designs, maybe make new masks. Once he's more capable with power tools, he plans to carve canoes.

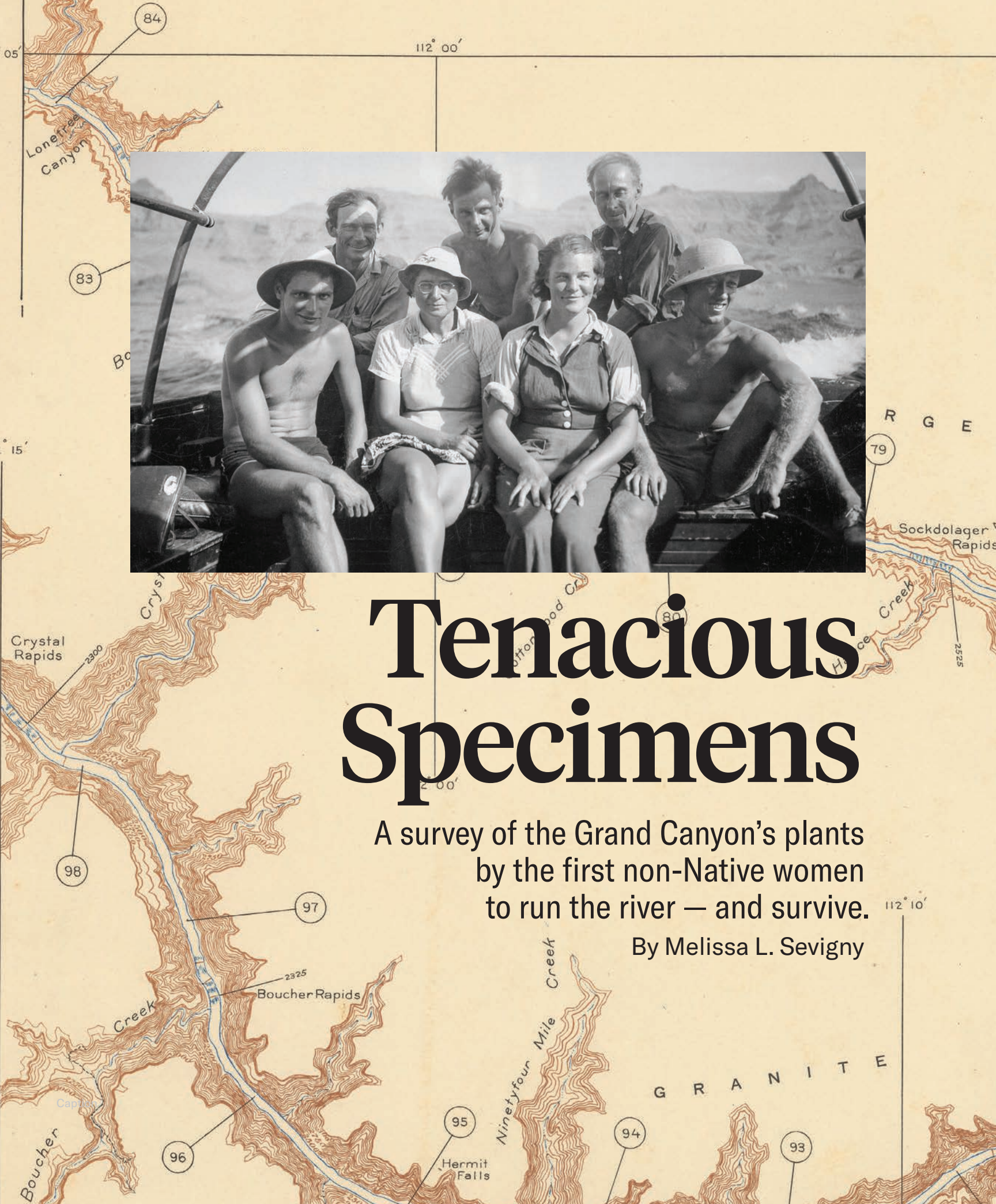
And Khephren wants to whale someday, to paddle out in a canoe that he'll carve himself, past Cape Flattery, to the places his dad told him about, where his great-grandfather and great-great-grandfather hunted, where the green water turns blue. ☀



Tenacious Specimens

A survey of the Grand Canyon's plants
by the first non-Native women
to run the river — and survive.

By Melissa L. Sevigny



THEY ENTERED, AT LAST, the Grand Canyon. The date was July 13, 1938. Elzada Clover and Lois Jotter, two botanists at the University of Michigan in Ann Arbor, had started down the river 23 days earlier with three boats and four amateur boatmen, none of whom had run the Grand Canyon before. Pale, water-pocked ledges of Kaibab limestone rose out of the Colorado, laid down 270 million years ago when the desert was a sea.

Had they been geologists, they would have marveled at their plunge into the past, each river mile eating away another chunk of history, 10,000 years with every splash of the oars. There were secrets to be told here: about past climates, warm shallow seas, the inexorable work of uplift and erosion, and the catastrophic clawing of landslides and floods.

But Clover and Jotter had come to find plants, and to make the first botanical study of the Grand Canyon in Western science. Jotter dismissed the entire spectacle of stone in a journal she kept during the trip with the scribble, “nice clouds and red cliffs.”

There were many stories about the Grand Canyon. Some of them were true. People said that if you traveled too deep into the chasm, you could look up at midday and see the stars. It was rumored that whole plateaus inside of the canyon had been cut off from the outside world for so long that primordial monsters still roamed there, relics of a ferocious past. The few non-Indigenous expeditions that had ventured inside — a few by river, the others on foot — came out with more fancy than fact. They spoke of a fabulously rich silver mine that nobody could find, and herds of feral horses no bigger than coyotes. They told campfire stories of a petrified man whose form shone out clearly from the canyon wall — and why not? The sculpted stone, sometimes, did look like it was trying to form living shapes, fluted into scales or fur by the constant wear of water.

Many people talked about the oppressive, claustrophobic feeling of the walls closing in overhead, blotting out sunlight, casting long purple shadows over the endlessly churning river. “The Grand Canyon of Arizona,” wrote John L. Stoddard, “is Nature wounded unto death and lying stiff and ghastly, with a gash 200 miles in length and a mile in depth in her bared breast.” That was one

description in a collection of essays published by the Santa Fe Railroad in 1902. The book was meant to promote tourism, a plan that may have backfired, because none of the writers could agree on whether the Grand Canyon was gorgeous or horrifying. C.A. Higgins called it a “chaotic under-world, just emptied of primeval floods.” Another visitor summed up his experience in a burst of feeling: “Horror! Tragedy! Silence! Death! Chaos!”

Jotter had dismissed these overblown descriptions before the trip. She told her father the Grand Canyon couldn’t possibly be worse than the gray cliffs of Yosemite, where she had spent six weeks in a program designed to train National Park Service naturalists the preceding summer (“because the difference between three and five thousand feet can’t be appreciated much as difference,” she wrote.) Of course, there was a difference. In Yosemite she had slept safe on the gentle surface of the Earth and looked up at the mountains. Now, she was trapped in a mile-deep crack, with no way out but through.

The expedition had been Clover’s idea. At 41 years old, Clover was the adventurous one, chasing her dream of cataloging all the cacti in the Southwest. Jotter, her 24-year-old protégé, had joined, not for the promise of adventure, but the lure of unknown plants. Every sprig and leaf and twig they gathered would have scientific interest, for nobody had made a collection in the canyonlands before. They had paid for the trip from their own pockets and a modest grant from the University of Michigan; Jotter had been forced to borrow \$200 from her parents, an amount equal to a third of her annual salary as a graduate assistant. The pooled money from the expedition members covered the costs of building the boats — they were a newfangled, untested design — plus the bags of canned food and boxes of Ry-Krisp crackers. Clover and Jotter had planned for months, packing and repacking their bags. They were finally here, at the bottom of the Grand Canyon, the banded walls rising with every mile.

But Jotter made no mention of harrowing depths or ghastly colors in her journal. Her attention was all on plants. They clung to the talus slopes or fringed the river’s edge, a sparse scattering of agave, yucca and four-wing saltbush, with the occasional hackberry or redbud tree. The two botanists snatched up specimens whenever they could. They gathered samples of Mexican devil-weed (*Aster spinosus*), tall green stems topped with white flowers which grew thickly on the cobble bars, and twining snapdragon (*Maurandya antirrhiniflora*), a plant with rambling tendrils and magenta blossoms shaped like pursed lips waiting for a kiss.

This story was excerpted from Brave the Wild River: The Untold Story of Two Women Who Mapped the Botany of the Grand Canyon, to be published on May 23, 2023, by W. W. Norton. Used with permission.

*There was a delicate art to laying out a specimen,
the leaves splayed out separately and arranged
as naturally as possible.*



Oryzopsis hymenoides (above) collected in Marble Canyon.
University of Michigan Library Digital Collections.
<https://quod.lib.umich.edu/h/herb00ic/x-1414132/mich-v-1414132>. Accessed April 13, 2023.

The Nevills expedition on the banks of the Lower Grand Canyon with the boats *WEN*, *Botany* and *Mexican Hat* (facing page). **Norman D. and Doris Nevills Collection.**
Utah River Running Archives Multimedia Archives, J. Willard Marriott Library, University of Utah.

Although the women were the first scientists of European descent to map the plant life of the area, they were not the first people. Eleven federally recognized tribes have cultural connections to the Grand Canyon; they know its plant life intimately. Hualapai, for example, use sagebrush and seep willow in ceremony and medicine; they and other Native peoples prune and burn three-leaf sumac (*Rhus trilobata*) to promote the long, bendy stems needed for basket-weaving. Many seemingly “wild” plants really evolved alongside their human harvesters. The nearly 200 specimens Clover and Jotter had collected on their river trip so far all had their own names, uses and histories largely unknown to Western botanists. The field of botany suffered because of racism and colonialism. Plant collectors in the United States dismissed local knowledge of plants in an eagerness to “discover” species. And as many Native languages and cultural practices vanished under the U.S. government’s systematic eradication efforts, some information about plants and their uses also disappeared.

Clover and Jotter knew a little about how Native peoples of the canyon used its plants; they likely knew nothing at all about how those plants, in turn, had been shaped over the millennia by the skillful management of Native peoples. The women looked at the Grand Canyon with eyes trained in Western science. They knew that it lay at the intersection of three biologically distinct deserts: the Great Basin, the Sonoran and the Mojave. Clover wanted to study whether plants peculiar to each desert extended their ranges along the river channel. Both botanists also knew that plant communities changed with elevation, and they intended to track those subtle shifts as they descended the river. Lastly, they planned to seek out any “relict flora” that were tucked away in the canyon, having persisted in place through changing climates as the plateau rose and the river cut down. To satisfy their curiosity, they needed a complete picture of the Colorado River’s ecology.

ON JULY 15, the expedition pitched camp on a sandbar crowded with driftwood. Lorin Bell, a freewheeling soul who had been working as a sheepherder and agreed to join the expedition without knowing which river they’d be running, created a table out of a 12-foot piece of waterlogged lumber washed

down from who knows where. The spot had an overhanging ledge to shelter them in a pinch, if it rained: The Redwall limestone had appeared, pale white shelves stained crimson from iron oxides seeping down from the layers above. It had formed beneath a shallow sea more than 300 million years before, and fossil traces of sponges, sea lilies and corals made a faded palimpsest within the stone.

In addition to camp chores, the women did the cooking for the crew; that meant trading off who would make dinner and who would collect specimens every evening. Tonight, it was Jotter's turn to do botany. She scrambled up the talus slopes in search of plants. Apache plume (*Fallugia paradoxa*) was all over the hillside. Its pink, feathery flowers looked straight out of some fairyland, grafted to the end of dry, knobby sticks. Agaves were common, too, silhouetted on the ridges above her like astonished porcupines. She cut a few leaves from a particularly fine specimen with a 12-foot stalk. *Leaves* was a misleading word. Agaves grew in rosettes of fleshy, blue-green swords, toothed all the way to the tips. Hualapai prize the plant for its heart, sweet as molasses when roasted in hot coals. In fact, *Agave phillipsiana*, a rare species of agave with long, lush leaves, grows nowhere but the Grand Canyon, where it was likely introduced and tended by Native people. The agave Jotter collected, *Agave utahensis*, is common in the Southwest. It is also called the century plant because people said it flowered just once in a century, a poetic exaggeration. The plant usually sends up a flowering stalk when it is between 20 and 40 years of age. The big yellow blossoms turn the top of the stalk into a flaming torch for a few days or a week, drawing in a paparazzi of bats and buzzing bees. Then the stalk falls and the plant dies.

This agave was odd: It had red spines. Bright red, not the usual brown-burgundy color. *Curious*, Jotter thought. She looked closer. Then she realized that her hands were cut and bleeding. "The red was my contribution!" she wrote in her journal.

Night had fallen by the time she returned to camp. The others had eaten dinner without her. Jotter pressed her specimens in a light sprinkle of rain. Ideally, a botanist collected the entire plant — root, stem, leaf and flower — and pressed it flat between sheets of newspaper, adding a blotter to whisk away moisture. Stacked on top of each other, these alternating layers would go between pieces of



thin wood, cinched tight with straps. There was a delicate art to laying out a specimen, the leaves splayed out separately and arranged as naturally as possible. It was time-consuming work, even for the easy plants. A cactus pad had to be sliced in half, lengthwise, without disturbing its spines, and the pulpy inside scooped out, before it could be flattened and preserved. Later, Jotter had a cup of hot tea and nibbled on leftovers, feeling sorry for herself. The cuts on her hands had scabbed over, her nails worn blunt and grimed from the day's work. Fine sand filtered into her clothing and hair. But that night, she dreamed

of pressing plants in sleeves of newspaper. Clover, snuggled beside her under the shelter of the overhanging ledge, heard her mutter, "It's just wonderful!"

"What is?" Clover asked.

"I made a wonderful collection," Jotter said. Clover realized she was talking in her sleep.

The rain cleared, but the air was sweltering even now, hours after the sun had descended behind the canyon walls. In the night, Clover woke with a start. A noise had startled her. Was the river rising? She climbed out of her bedroll and went to look. The river was rising, a little, but the boats were safely moored. She stood spellbound by the moonlight drifting down the cliffs, a play of silver light and deep shadow. Bell woke, too, and came to join her at the river's edge. They stood silent beneath the cold glow of the stars, watching the nearest rapid curl and froth, playful as an otter. Finally, Clover crawled back into her bedroll, feeling her air mattress deflate by slow inches. (She'd lost the plug some time before.) "The night was so beautiful that I couldn't sleep," she wrote in her journal. She had been warned about the Grand Canyon, its oppressive walls and gloomy crags, and how the sound of water striking rock preyed on travelers' minds. She found, instead, a nameless beauty.

The two women woke before dawn, went for a swim, and then, tired of Grape-Nuts and hotcakes, made a mess of biscuits in a skillet for breakfast. They shot several rapids that morning and Jotter got an unexpected dousing when her boat struck a rock near shore and flipped her, head over heels, into the water. Just as well the weather was so hot. The Redwall limestone now rose in a straight, shining, polished bulwark above them, riddled with arches, chambers and rounded hollows where water had impudently scribbled its signature on the masterpiece of stone. Caves flickered with dancing blue light, driftwood wedged in their mouths like false teeth.

Around 11 a.m., they dashed the boats sideways through a fast riffle, made a hard

turn into an eddy, and floated back upriver to ground on a spit of sand. They had never stopped midday to collect plants before, but Clover insisted. This place was special. Above them, freshwater springs leapt out of the limestone and unraveled long, twisting ribbons. At a glance they could see the dominant species: Western redbud, scarlet monkeyflower and poison ivy. Clear rivulets of water chattered and bubbled from beneath this verdant tangle, licked with streamers of algae and moss and more beautifully arranged than any ornamental garden. In 1869, John Wesley Powell had looked at this spot with a geologist's eyes, describing the sun-struck fountains as "a million brilliant gems," but he named it Vasey's Paradise after a botanist, George Vasey. Vasey never boated the Grand Canyon, nor saw the place that bore his name. Clover and Jotter were the first botanists to make a catalog of the plants there for Western science.

They picked their way gingerly over the spray-slick stones. Plants in this place reveled in water. The monkeyflower (*Mimulus cardinalis*) grew in clumps covered with blossoms that resembled ruby-red slippers for very tiny feet. Here, too, were wooly clumps of Stansbury cliffrose (*Cowania stansburiana*), its flowers fragrant and creamy white. There was a thicket of horsetail (*Equisetum praealtum*) and a mat of watercress (*Rorippa nasturtium-aquaticum*), an edible plant with a taste like peppery lettuce. Mosses and ferns sprang up wherever spray touched the rock. One variety, the side-fruited crisp-moss (*Pleurochaete squarrosa*), grew in tight, kinky curls until it got damp, and then unfurled into yellow stars. Longleaf brickell-bush (*Brickellia longifolia*) grew out of cracks in the limestone, its roots in a hidden spring, its narrow leaves and white blossoms hung upside-down as if drunk on their own heady fragrance. Clover and Jotter sampled everything except the poison ivy (*Rhus radicans*), which lay in green hummocks over rocks printed with the silver tracks of snails.

Steps away from the springs, the desert reasserted itself: hedgehog cacti, spiky agave and shrubby Mormon tea. This was a world

that followed none of the neat rules Clover and Jotter had learned in botany textbooks. Clover was familiar with the work of C. Hart Merriam, who had come to Arizona almost 50 years before to work out his theory of "life zones." Merriam believed that the continent of North America could be divided into seven distinct zones, each with a particular distribution of plants and animals. He had used the San Francisco Peaks, an extinct volcano directly south of their present location, as a living laboratory.



He thought the San Francisco Peaks could be used as a microcosm of North America as a whole. A day's hard hike from the peaks to the desert mimicked, biologically, the trek from Canada to Mexico. At the very top, nothing grew but the hardest of flowers, like the pygmyflower rockjasmine, a modest white bloom that could also be found in Greenland, Nunavut and other realms in the icy North. Below that came the timberline zone of bristlecone pine, gnarled and twisted from fighting the ever-present wind. Then came the spruce-fir forest, then mixed conifers — similar to the forests of Canada — and then the unbroken woods of ponderosa pine that skirted the peaks. Beneath this was a

"Lilliputian forest" of piñon and juniper trees, which grew right up to the rim of the Grand Canyon. And then, at last, the desert: "the vast stretches of burning sand," as Merriam described it, "the total absence of trees, the scarcity of water, the alluring mirage, the dearth of animal life, and the intense heat, from which there is no escape."

Merriam's ideas weren't entirely new: He built on the work of the famed German naturalist Alexander von Humboldt, who had developed a similar concept about the relationships between plants and climate, using a mountain in Ecuador as his model; and Hopis have their own names and rigorous classification system for the environmental zones in the Grand Canyon. Still, scientists received Merriam's seven "life zones" with enthusiasm. The system was better, by far, than simply hacking North America into Eastern, Central and Western provinces, as naturalists had done before. It reflected the adaptations of plants and animals to their environments, making it a practical application of Darwin's theory. But criticisms soon arose. Merriam had focused only on temperature and ignored other factors that could influence a plant or animal's range. Cavalierly, he applied his life zones to the entire North American continent, even though fieldwork made it clear that they worked well only in the mountains of the Western U.S.

Clover's trip downriver was an ideal opportunity to probe Merriam's life zones for flaws. She had dropped about 1,000 feet in elevation since leaving Green River, Utah, and would descend another 2,000 if she made it to Hoover Dam. She now felt the life zone concept was useful in the Grand Canyon in "only a broad way." Too many other factors shaped the distribution of plant life: the nearness to water, the texture of soils, the angle of sunlight, the browsing herbivores. She sampled moss one moment, plucked cactus pads the next.

Merriam's work, perhaps because of its flaws, sparked a lively conversation among botanists and ecologists. If temperature alone did not define the pattern of life on Earth's surface, what did? A more holistic view of

climate fit better with observations, including rainfall and snowfall, evaporation and transpiration, and the changing seasons. But even this wasn't enough. In some places, soil overrode the importance of climate: deep sand dunes and rocky outcroppings. In others, water ruled: coastal marshes, mires and bogs. There were physical processes like erosion and deposition, and biological ones like competition, predation, migration, and extinction. Disturbances — fires and floods — played a role. It was like a series of locked gates, and only those plants and animals with the right key — the right adaptations — could pass. The world wasn't made up of neatly defined zones, but rather circles within circles, with blurred boundaries and interlocking parts. Simple, elegant theories gave way to messier ones.

Merriam stuck with his life zones until his death in 1942, but he had come close to recognizing their flaws when he descended into the Grand Canyon during his 1889 expedition. A sore knee prevented him from hiking all the way down to the river, but what he saw puzzled him. The life zones seemed crowded into narrow, rapidly changing bands. Tiny forests clung to talus slopes, and springs interrupted the desert with frantic explosions of moss. At 1 a.m., he hiked back to the rim alone, holding a gun in one hand and a dead skunk in the other. Black as iron gates, the walls closed in. “The way seemed without end,” he wrote in his journal. “The higher I climbed the higher the walls seemed to tower above me.” He could say nothing about the Grand Canyon with any certainty. It was “a world in itself,” Merriam wrote, “and a great fund of knowledge is in store for the philosophic biologist whose privilege it is” to study it.

CLOVER AND JOTTER had no time for philosophy. They had barely an hour to spend at Vasey's Paradise. “We collected furiously,” Jotter wrote in her logbook, heedless of a light rain. Some of the crew members, meanwhile, stripped down to shorts and showered beneath one of the waterfalls. By noon the men were waiting hungrily for lunch. Clover suggested mildly they get out the canned food and cold biscuits (left over from breakfast) and feed themselves. But when the two women finished putting up their samples in newspaper, they found the rest of their crew “waiting big-eyed & expectant under a rock.”

They had barely an hour to spend at Vasey's Paradise. “We collected furiously.”



Adiantum capillus-veneris collected from Marble Canyon in Vasey's Paradise.

University of Michigan Library Digital Collections.

<https://quod.lib.umich.edu/h/herb00ic/x-1582138/mich-v-1582138>. Accessed April 11, 2023.

Botanical study of the Grand Canyon by Elsie Clover and Lois Jotter, the first two women on the first commercial trip down the Colorado River, 1938. **Lois Jotter Cutter Collection.**

NAU.PH.95.3. Special Collections and Archives, Cline Library, Northern Arizona University.

*Prickly pears dangled long stringers
of paddle-like leaves from the tops of
boulders, Rapunzel-like ...*



Opuntia phaeacantha engelmannii, collected near Hermit Creek Rapids (above).

University of Michigan Library Digital Collections.

<https://quod.lib.umich.edu/h/herb00ic/x-1618234/mich-v-1618234>. Accessed April 13, 2023.

After 45 days of boating down the rugged gorges of the Colorado River, Lois Jotter, left, and Elzada Clover prepare to return to civilization (facing page). **AP Photo/RJF**

In a rare moment of impatience, Clover wrote, "We have spoiled them completely."

They left Vasey's Paradise and went on, deeper into the canyon. The walls rose in tiers, stretching back to a jagged skyline. High gaps on the cliffs looked like keyholes, and when the angle was just right, the sun's rays fumbled through like a skeleton key turning in a lock. It had been four days since they entered the Grand Canyon — almost a month since they started downriver. Their clothing grew disheveled, despite frequent use of Clover's sewing kit. The women wore their overalls rolled up to the knees; the men had their shirttails untucked or wore no shirts at all. "We are wet all the time," Clover wrote, "so the less on the better."

They were now more than 40 miles downriver from Lees Ferry, where they had last stopped for supplies, and the plant life was changing as the climate grew hotter and drier. Honey mesquite (*Prosopis juliflora*) appeared, a shrubby tree with minuscule leaves and sweet-tasting beans tucked into rattling seedpods. The tough, teardrop-shaped seeds wouldn't sprout unless they were battered by floodwaters or half-digested by an animal, thus ensuring they would spread far and wide. Native people who lived in the canyons also shaped the natural history of mesquite, by cutting some trees for firewood but sparing the ones with the sweetest-tasting beans.

Mesquite mingled on the talus with catclaw acacia (*Acacia greggii*), also called wait-a-minute bush, because of the way its curved thorns snatched at passersby. Strawberry hedgehog cactus (*Echinocereus engelmannii*) grew in thick rosettes straight out of the cliff walls, as if pinned up like wreaths. Prickly pears dangled long stringers of paddle-like leaves from the tops of boulders, Rapunzel-like, trying to escape their towers on ropes of knotted green hair. Prickly pear (also known by its Spanish name, *nopal*) has edible pads and fat, oval fruits, sweet to the taste, if one does not mind magenta-stained fingers and a sticker or two. Clover and Jotter had cataloged several species so far, some spineless but covered in tiny, near-invisible bristles, some with yellow flowers, others vivid cerise. "Their existence seems to be precarious," wrote Clover, "since they are usually found half-buried in sand or lodged between boulders." Near President Harding Rapid, *Opuntia engelmannii* appeared for

the first time, with unusually large pads and plum-colored fruits. Indigenous residents of the canyon may have brought this type of prickly pear up from the South and deliberately tended the plants as a pleasant addition to meals.

There was plenty to collect while the men ran the boats through the rapids, but Clover seemed a little bored with her safe, landbound role. At one rapid, she dared Bell to hit a big rock on purpose and tip over so she could get a photograph. He did dart the boat thrillingly close to a boulder and had to apologize to the trip's leader, Norman Nevills, for his recklessness. Ashamed of herself, Clover wrote in her journal that she never dreamed he would try it.

Muav limestone rose out of the river, gray and striated: a slip of time sending them back to the Cambrian Period, more than 500 million years before, when multicellular life began to flourish and struggle out of the fecund sea onto a barren shore. Bright Angel shale appeared beneath it, crumbling horizontal layers of purple and green. It was now nearly impossible to climb from the river to the rim, but a crack in the sheer Redwall wedged with broken timbers showed where Ancestral Puebloans, long ago, built a precarious road. The crew floated below the open mouths of cliff dwellings and sifted through pebbles for arrowheads and sherds. Their fingers startled up tiny toads. Deer watched their passing from dark thickets of mesquite, ghosting away through the tight weave of spiny branches. Below the boats, the dark water concealed its secrets. Hard to believe, but there were fish in that river: fish with leathery skins and torpedo-shaped bodies evolved to withstand endless sandblasting, and monstrous minnows that grew to the length of a man and weighed 100 pounds. Clover, in the back of her journal, began to scribble a poem:

*How can I write so you will understand,
Who have not heard the raging devil
roar . . .*

But the canyon's strangeness seemed to slip away from the strict, formal lines, and she concluded in despair: "The subject will probably be beyond me."

They ran 25 miles on July 17. The Tapeats sandstone emerged at river level, dark rock fractured into horizontal lines, flaky as well-made pastry. Lying on top like serpentine

dragons, fast asleep, were petrified flows of travertine, a spiky stone made from calcium carbonate precipitating out of water. They passed the Confluence sometime that afternoon, where the Little Colorado River emerged from its own canyon on the left and bent around its delta to join the Colorado. The waves turned choppy and coffee-brown where the two rivers met. Tumbled stones, rounded by water, lay on the delta: azure and mauve, taupe and terracotta, some white and cracked like eggs ready to open, others like blunt black knives. The Confluence is a sacred place to Hopi, Zuni and other tribes.

jam of driftwood, and set it ablaze. Nevills had arranged this signal with the Park Service: A single bonfire meant "everything OK," a double bonfire meant "send help." It was a fine sight, the fire roaring and crackling beside the dark waters of the river, with a stormy sky above. They strained their eyes, looking for some answering glimmer from the tower. There — perhaps that was it — a quicksilver shine in the darkness. Or perhaps it had been a trick of starlight. It was hard to be sure of anything, down here.

The women woke before dawn the next day, as usual. All was gray. The air held a sense



Nevills deemed the place a poor campsite, so they drifted on to the head of Tanner Rapid. Up until this point the river had hoarded its vistas, a notch here or a bend there revealing some startling view of sky — or merely another cliff, higher and farther away than the first. Now, as if regretting its stinginess, the landscape rolled back. Red round hills sloped down to the water, and beyond them, in every direction, one could see layers of strata stacked, tilted, and jumbled, wedding-cake-style, if a wedding cake oozed travertine and spit boulders. To the south, the round cylindrical bump of the Desert View Watchtower stood on the highest ridge, blue with distance and furred with juniper trees. They camped in a cove at the head of the rapid, found a handy

of impending rain. Their camp was tucked into a great bend in the river, so the water curved away in both directions. A pink mist lay over its surface in languid folds. Dark clouds hung in the east, underbellies alight with gold ribbon and purple gauze. Then the sun's first rays crossed to the opposite canyon wall and lit the Watchtower. The world turned salmon. The light slid downward, burnishing the somber gray cliff to a glow. The gibbous moon, waning now, had not yet set; broken-edged, it hung over the canyon. A rainbow leapt from the cliff wall into the sky, one dazzling pathway from earth to cloud. Jotter and Clover stood in their damp, wrinkled clothes, nails torn to the quick, aching and bruised, lost for words. ☼

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The many ways to see a story

Acclaimed Indigenous author Debra Magpie Earling returns with a new novel.

BY MAGGIE NEAL DOHERTY
PORTRAIT BY ALEXIS HAGESTAD

“DO NOT TRUST ANYONE who tells you you cannot tell your story. Do not trust anyone who tells you there is only one story. If there were only one story / Or one way of seeing things all stories would die,” Debra Magpie Earling writes in her new novel, *The Lost Journals of Sacajewea*. Old Woman’s advice to the Lemhi Shoshone woman known as Sacajewea could also apply to Earling, a Bitterroot Salish author whose lyrical and inventive works strive to give voice to Indigenous women like Sacajewea.

The Lost Journals of Sacajewea marks the long-awaited return of this critically acclaimed, immensely talented writer, whose career was hampered by the shuttering of her first publisher, BlueHen, shortly after her award-winning first novel, *Perma Red*, was published in 2002. In early February, I drove to Missoula from my home in Kalispell to interview her. The western Montana landscape of the Flathead River Basin — home to the Flathead Indian Reservation of the Confederated Salish and Kootenai Tribes — is also the dramatic setting of *Perma Red*, and I recalled the poignant, intense moments when the main character, Louise White Elk sets out on foot, fleeing dangerous, obsessive men and her own forced attendance at boarding school.

Earling’s mother was raised on the res-

ervation, where her maternal family held allotments; *Perma Red*’s protagonist, Louise White Elk, was modeled on her Aunt Louise. Earling, a member of the Confederated Salish and Kootenai Tribes, grew up in Spokane, but dropped out of high school at age 15, and at 17 earned her GED with her mother. She moved to the reservation to work for the tribal justice system as a public defender when she was 18 years old, despite having less than two weeks of training and no formal education in law. After a couple of years in the tribal justice system, she returned to Washington to study English at the University of Washington, eventually obtaining master’s degrees in English and fiction at Cornell University in New York. But Missoula would become her home. She joined the faculty at the University of Montana, where she served as the first Native American director of the creative writing program and taught both English and Native American studies. Earling is now in her mid-60s, recently retired from the university, and her long-overdue writing career appears poised for a resurgence, backed by a new independent publisher, Milkweed Editions, which reissued *Perma Red* last fall. Milkweed is known for representing Indigenous women and writers of color, including bestselling author Robin Wall Kimmerer and U.S. Poet Laureate Ada Limón.

When Earling first moved to the state, she told me, “Nobody wanted to be in Montana. You wouldn’t even see a car on Highway 93.” Now, a steady stream of cars buzzes along the stretch of U.S. Highway 93 between Kalispell and Missoula. Montana has become a very desirable place to live, largely owing to the pandemic, which inspired people to leave the cities and relocate to Western landscapes known for their storied open spaces and dramatic big skies. Popular television shows like *Yellowstone* are just another repackaging of the mythology of the American West and its frontier ethic and rugged individualism. As a storyteller, Earling pokes holes in those glossy, narrowly focused tales, highlighting the truth of what this encroachment has done to the state’s Indigenous population and confronting the dominant narrative of how Native women are represented on the page.

Both *Perma Red* and *The Lost Journals of Sacajewea* are works of fiction, but they reflect real-life experiences, and they draw attention

to the epidemic of disappearances and murders that continues to stalk Indigenous women. *The Lost Journals of Sacajewea* initially began as a response to the 2005 celebration of the bicentennial of the Lewis and Clark expedition. The prose poem, told in the voice of Sacajewea after she encounters Lewis and Clark, evolved into a four-year collaboration between Earling and master printer and book artist Peter Rutledge Koch. Together they created a limited-edition work of art they called “The Lost Journals of Sacajewea.” Earling felt compelled to continue unearthing young Sacajewea’s life, and she drew on that extensive research to expand her collaboration with Koch into her new novel, also titled *The Lost Journals of Sacajewea*.

“I’m trying to work my way through a story that is powerful in our mythology, and that tends to erase people, and then there’s no complexity in their lives,” Earling said. “I felt comfortable writing about her because she doesn’t seem to belong to anyone. She’s become mythological in scope, and that denies her humanity in every single way possible.”

Earling acknowledges that her novel is not the definitive story of Sacajewea, but she hopes that it will allow for a new perspective on the legendary expedition, which drastically altered the lives of Indigenous peoples and led to the decimation of tribes and the bison herds they depended upon. “There’s so many threads within a story. There’s so many ways in which to see, to experience a story, to think differently about stories. This story in particular,” she explained, “just adds to the immense literature that’s already out there.”

The Lost Journals of Sacajewea begins in Sacajewea’s seventh winter before her village was raided, her parents killed, and she was captured by an enemy tribe. Earling wrote the journals in what she calls “shat-

The Lost Journals of Sacajewea

264 pages, hardcover: \$26
Milkweed Editions, 2023.

Perma Red

348 pages, softcover: \$18
Milkweed Editions, 2022.

tered prose,” using line spacing, typographic effects and punctuation to give the story a physical, poetic and kinetic feel. More so than in *Perma Red*, Earling “shatters” conventional form to create a movement that is akin to poetry but much more dynamic. Earling bends and slants words, electrifying Sacajewea’s attempts to comprehend and describe what is happening in her often violent and unstable world. Strike marks represent her struggle for the right words. In the chapter titled “Night too soon gone,” which takes place after the raid, she records her brother’s disappearance by writing, “We. They move on. Too Ott Lok’s body drums, drums Enemy’s riderless Horse.” But Sacajewea has not moved on from the tragedy, so those who have become “they” instead of “we.” Throughout the text, two dots are used to symbolize either a drumbeat or a heartbeat; Earling explained that the beats mark places in the story where Sacajewea needs to pay attention or where a sacred moment is about to unfold.

The Lost Journals of Sacajewea is more experimental in form than Earling’s debut novel, *Perma Red*, though both stories bear the hallmarks of her inimitable style. *Perma Red* received critical acclaim and numerous awards, including the Western Writers Association Spur Award for Best Novel of the West, a Mountains and Plains Independent Booksellers Association Award, a WILLA Literary Award and the American Book Award. Within a year of its publication, however, the publisher was out of business and the novel was out of print. But *Perma Red*, a harrowing and complicated love story set on the Flathead Reservation in the 1940s, continued to resonate deeply with readers. In 2019, it was named Montana’s “Best Loved Novel” by the Great Montana Read program, beating best-selling classics like Norman Maclean’s *A River Runs Through It*.

Earling creates immersive landscapes where women like Sacajewea and Louise Yellow Knife are given an opportunity to speak; she writes with distinct, unflinching attention even as her characters suffer brutal physical and sexual violence. “Even though I love writing, the stories themselves are really hard for me to write,” she said. But challenging though the process may be, Earling has made it clear that she has many more stories still to tell. ✨



“I’m trying to work my way through a story that is powerful in our mythology, and that tends to erase people, and then there’s no complexity in their lives.”

The spirit of the Rillito

'New animism' seeks a connection to nature's pulse.

BY RUXANDRA GUIDI

PHOTO BY ROBERTO (BEAR) GUERRA

SOMETIMES I LIVE near a river. It's called the Rillito, or "Little River," in Spanish, and it carries water only when it rains or after the snow in the nearby mountains melts. Most of the year, it's a dry wash thick with mesquite trees and tall grasses; at dusk, I often see coyotes flitting between the bushes. People walk their dogs in the dry riverbed.

The Rillito didn't always come and go: About a century ago, its flow was continuous, and the riverbed was lined by larger, leafier water-dependent vegetation, such as willows and cottonwood trees. But as regional agriculture and the city of Tucson grew, groundwater pumping destroyed the perennial stream, and, with it, most of its riparian habitat. One unforeseen consequence of this was that the "little river" now rose and widened with each flood, unleashing a raging force each time it rained.

Just west of us in Southern California, atmospheric rivers have brought storms, flooding and landslides, killing more than 30 people. Such is modern-day life in the West: Nature's disrupted cycles make for a frustrating commute, at the very least; at the worst, they can bring a death sentence. It didn't have to be this way. Nature wasn't always this destructive, this often. Then again, we were never meant to be this disconnected from Earth's heartbeat.

Across geography and culture, our ancestors had a greater reverence for nature's myriad expressions — for what makes a river swell, or how a forest landscape regenerates

after a fire. As a city dweller living far removed from my cultural roots, I find myself often searching for this deeper understanding of the living world around me and how it shapes and nurtures all of us.

Anthropologists have another name for this: animism, from the Latin word *anima*, or soul. It's a concept as difficult to decipher as dreams, death or apparitions, and it has a problematic history. The founder of cultural anthropology, Sir Edward Burnett Tylor, first introduced the word in his 1871 book *Primitive Culture*, which argued that culture progressed from primitive to modern expressions. Today, Burnett Tylor's theories, which denigrate Indigenous worldviews as childish and backward, are considered beyond anachronistic.

But before colonization and the human-centered organized religions that accompanied it, animistic worldviews taught us to listen to the natural world, to move to its beat. For many people, these songs never stopped playing. Others are learning to listen to them anew.

"WATER GRATITUDE WALK on the Santa Cruz River, 1 p.m.," the social media post read. I showed up at a park by the other river flanking Tucson, curious but wary of what I expected to be a woo-woo New Age gathering. Four others who seemed equally unsure came, too. "I just figured it'd be nice to be outside with other people," a woman I met in the parking lot told me. She looked like she was in her 40s, like me. "I'd grown used to being alone during the pandemic."

A 55-year-old white person originally from Portland, Oregon, Quynn Red Mountain met us at the edge of the wash and gave a brief overview of landscape restoration efforts that are returning treated wastewater to this section of the Santa Cruz River. Then we all walked along the riverbed, chatting side-by-side while occasionally picking up trash from the ground.

Red Mountain has adopted the nickname given to their tall, redheaded father. They call themselves an animist minister for the Web of Life Animist Church, a church "for Earth-honoring people" legally founded in 2008. But they are quick to tell me that animism is "not a religion but a practice," a set of beliefs and actions that honor the original ways in which humans connected with each other and

with nature, before those relationships were disrupted by modern religions and ways of life.

The purpose of the visit to the Santa Cruz was simply to call people's attention to its speedy regeneration, Red Mountain explained — to say "thank you for this water that is helping the animals and this place."

In my head, I tried saying "thank you," too, skeptical of who, if anybody, would be listening. I am not religious, but I grew up with a respect for all living things, including the landscapes — the rivers and mountains — that sustain them. Witnessing anthropogenic change and recognizing my own role in it has been crushingly disorienting and sad; I find myself searching for the kind of guidance my grandmothers or great-grandmothers would have given me had we had more time together.

A GLOBAL INTEREST in spirit worlds has often been driven by non-Indigenous peoples. But with animism, a collective gratitude for nature and its inherent magic need not be in the form of Indigenous appropriation, said Natalie Avalos, an assistant professor in the ethnic studies department at University of Colorado Boulder.

People are demoralized and alienated by modern-day lifestyles focused on materialism, technology and productivity, she said: "I think a lot of people of European descent in the U.S., settlers that were disconnected from their own land-based traditions, have had a real sense of grief and have felt the allure of the New Age movement." Yes, many may still be romanticizing Indigeneity, she told me, but today some of these people are also starting to develop a more political consciousness that is defining boundaries around appropriation. In spiritual circles, Indigenous leaders have long asked non-Indigenous peoples to recognize their white privilege, and to understand that the ecological crisis is deeply tied to colonialism.

"I'm genuinely surprised," Avalos, a Chicana scholar of Apache descent, said of this growing trend to acknowledge the legacy of colonialism and realize that meaning isn't necessarily found in the "other." "People have started to connect the dots more, but we still have a long way to go." Avalos is trying to connect the dots of her own Indigenous roots: Her mother and maternal grandmother were from northern Mexico and were separated



The Rillito River after an early spring rain this year in Tucson, Arizona.

from their band during the Indian wars of the late 19th century.

“What do you do about the white folks who want to capture Indigenous spirituality to find meaning?” she asked Indigenous leaders in the course of her ethnographic research. “Go to your own traditions and recover those. Try to draw on your own ancestral European traditions,” they told her.

Avalos believes there is a sincere effort among European-descended communities who want to change the way they relate to life and to land, and to “model new ways of being in the world for other white folks.” And she said this can be very powerful because it has the potential to influence mainstream consciousness, and eventually change relationships with those who have been marginalized, especially Indigenous peoples. “We have to start somewhere.”

In recent years, a movement known as “new animism” has been trying to build consciousness about nature and the rights

of its various lifeforms, including rivers and mountains. In many ways, new animism is prompting us to unlearn Western views of nature as something separate from us that is but a collection of resources to be extracted and exploited. It wants us to ask: What if we sought to secure the same rights for nonhuman beings that we do for people, and did so through legal means? What if we were to revert to a pre-industrial view of nature?

New animism may be a product of our collective climate anxiety, but it also expresses the hope that if we begin to see bodies of water or trees or other plants as fellow beings, we

might learn to behave in more ecologically sustainable ways.

We can also hope for something much more basic. I am learning to acknowledge the seemingly dry or empty Rillito every time I pass by, reminding myself that it isn’t just a wash, but a whole ecosystem that I depend on. Maybe recognizing that it is alive, despite all the threats to it, will help us see it — and ourselves — anew. ☀

This story was made possible in part by the support of the Religion & the Environment Story Project at Boston University.

What if we sought to secure the same rights for nonhuman beings that we do for people?

THE SEASONS OF UŊALAQĪQ

An exploration of living in direct relationship with the land, water, plants and animals in and around Uŋalaqliq (Unalakleet), on the west coast of what's now called Alaska.



Bearded seal meat drying in the Inupiat village of Point Hope, Alaska. **Brian Adams**

Good ice

The first spring harvest relies on a still-frozen ocean.

BY LAURELI IVANOFF

DAD, ALWAYS THE CAPTAIN in his boat, inched it toward the football-field-sized ice pan in front of us. All around, ice pans, flat and frozen, floated in the Norton Sound, separated by avenues of ocean water. The white of the snow and ice reflecting the sun's rays was aggressive and welcome after a long winter. My 24-year-old nephew, Arctic, crouched to my left, so close I could feel him breathing. Between the warmth of the spring sun on our cheeks and the wish to move freely, we had taken off our winter jackets. Our arms rested on the cold bow of the aluminum boat, our rifles ready to fire.

"You ready, Arctic?" I whispered.

"Yeah," he whispered back.

"OK," I said. "One ... two ... three."

We both fired at the *ugruk* sleeping on the ice 100 yards ahead, but the bullets missed their mark. We watched the long gray mammal, heavier than the three of us put together, quickly slip into the hole it had scratched through the ice.

"How'd we miss?" I said as I pulled the gun's lever to eject the bullet casing, the metal against metal smooth. Arctic did the same without answering my question, knowing I wasn't looking for an answer.

Arctic is the kind of person you want to have next to you, whatever you're doing. When he was in high school, he was captain of the Wolfpack — the Unalakleet basketball team — and he led with quiet, assured dignity. Whether the task is to build a chicken coop, butcher a moose or cut salmon for drying, Arctic works from start to finish, cracking subtle jokes along the way. Your stomach relaxes and you breathe deeper when he's around.

As we put the guns on safety, the ocean water lapped against the sides of the boat, and the cool spring breeze brushed the backs of our bare necks. Dad slowly backed the boat away from the ice pan in case the *ugruk* popped up close by to breathe after diving. The scent of rotten fish and shrimp filled the air, and Arctic and I looked at one another, smiling. Accusatorily.

"Did you fart?" I asked Arctic.

"Nope," he said as we got a stronger whiff.

I started laughing, hard. "That *ugruk* farted on us."

SOMETIMES OUR SPRING bearded seal hunt happens in April. Usually in May. One year, the ocean ice broke up early and we were boating around ice pans in late March. Each year we wonder if the warming northern oceans will allow us adequate time to hunt for the largest of the seal species that live in the Norton Sound. *Ugruk* are 7 to 8 feet long and weigh several hundred pounds, and only good thick ice will support them. Some years, the ice melts too quickly, or the currents and winds do not bring thick pans that formed in the outer Bering Sea into the sound, and we have just days to hunt. Each spring, our family works to harvest at least three adult *ugruk*; the meat we dry and the oil we render feeds us all year long.

LATER THAT DAY on the boat last spring, Arctic pointed to the big dark head of an *ugruk* as the animal swam in blue water, each ripple reflecting sunlight, crisp and cheery. Unlike the smaller, curious ringed seals that duck back beneath the surface with hardly a splash, *ugruk* will dive in, showing their backs and rear flippers. The large seal dove, its curved spine seeming to go on for miles.

"That's a big *ugruk*," Dad said, in awe.

He piloted the boat slowly to where we'd seen the *ugruk* and pulled the throttle back. The motor idled; the glass-calm water reflected the clouds and bright blue sky, as if to let the earth adore itself after the dark winter. We waited. The rippling ocean waves sparkled and the water lapped against the ice pans. Our rifles in hand, we scanned the water all around us, calm and ready.

Arctic and I looked at one another, this time with wide eyes. We heard it.

The *ugruk*, beneath us.

Singing.

Hearing an *ugruk* sing is like hearing the ghost of a beautiful woman wailing, undulating between loud and soft. The song captures the attention of every cell in your body. It sounds haunting, but is nothing like a haunting. Instead of sadness or fear, the song evokes wonder and awe. And thankfulness, for getting a glimpse of the everyday for some beings, something that's unimaginable, momentous and rare for us, the visitors.

The ocean fell silent. We heard Dad's motor idling, again the lapping of water

against ice and our own slow breathing as we waited. Seconds later, the melody from below, from the water, began again.

Tears in my eyes, trying not to move or make a sound that would startle the seal, I looked at Arctic and smiled. He didn't smile back, but I knew he was also delighted. Anyone with a pulse would be.

EACH YEAR after the cold, dark winter, we celebrate our first successful spring harvest with a quintessential coastal Alaska feast, akin to a Christmas dinner, at my Dad's house. As he pulls *ugruk* ribs from his big stainless steel pot at the stove, steaming, and places them on a pan covered with boiled liver, *qiaq* (intestines), and blubber, the energy is there. I don't want to sound too much like a modern Native trying to be ultra-traditional, but it really is as if the *ugruk*'s energy is feeding us. Our souls. Our bodies. Our connection with the animal, the earth and one another. It's evident when our shoulders relax and we breathe fully after taking that first greasy, nutrient-rich bite.

DAD SPOTTED the *ugruk*'s head pop up 80 feet to the right of us. My shot. Its body in the water and its orange face in my gun's sights, I steadied myself and fired.

Missed.

The *ugruk* dove beneath the surface. When *ugruk* know they're being hunted, they no longer sing. We stood in the boat, again waiting for it to resurface.

After a minute or two, we spotted the *ugruk* swimming. Further out, to the left. Arctic's shot. He lifted his gun, aimed, took his time, and he fired.

A hunter often knows they've shot a seal when they hear the bullet's thud against fur and fat. Arctic's bullet splashed in the water an inch in front of the *ugruk*'s head, and it dove back under the water.

FORTY YEARS AGO, when I was a little kid, ocean ice formed in October and didn't melt until May, or sometimes June. This February, the ice that had looked promising for our spring hunts blew out with the strong east wind of a winter storm. The ocean, too warm, raged with big, loud waves. This spring, I wonder: If I one day have grandchildren, will they ever get to hear an *ugruk* sing? ❁

OREGON

An unusually resourceful Oregon man, who got stranded in a remote area of the Willamette National Forest without cellphone service, came up with a clever way to alert rescuers: He attached his cellphone to the drone he just happened to have stashed away in his car, texted a friend explaining his predicament, then hit “send” and launched the drone until it flew high enough for his phone to connect to a cellphone tower. The message got through, the authorities were alerted, and a team was sent out to rescue the guy. And not just him, it turned out: They also discovered another driver who’d been stuck in the snow for several days, KTVB-TV reported. We will hazard a guess that the other marooned individual did not have a drone conveniently located in their rig.

WYOMING

What does a 300-pound grizzly want for breakfast after it wakes up from its long winter nap? Apparently not espresso and some avocado toast; Yellowstone Public Radio reported that Yellowstone Park officials clocked the first grizzly emerging from hibernation — “hi-bear-nation” seems more appropriate — near the remains of a bison carcass in Pelican Park in the central-eastern part of Yellowstone. The last time we visited Starbucks we didn’t see “*sous vide* bison and Gruyère egg bites” on the menu. Who knew bears were such big foodies?

THE WEST

In related hungry bear news, the National Park Service tweeted out an important PSA regarding reports of aggressive behavior among the bear population — and referencing traditional advice for how to avoid being

eaten in the backcountry: “If you come across a bear, never push a slower friend down ... even if you feel the friendship has run its course.” The tweet went viral, and PublicEditor.com, an internet satire site, even issued a helpful poster that reminds all of us: “Friends don’t use friends as bear bait.” Mere acquaintances, now ... well, we suppose it depends.

MONTANA

Sometimes doing things the old-fashioned way has advantages. Case in point: Matt Jesson, a Livingston rancher, decided that rather than going to all the trouble of loading up and hauling his 150 cattle home from the grazing area they’d occupied for the last six months, he’d streamline the

process and just drive the herd straight through downtown Livingston. Reviews were mixed, as one might imagine, with some locals unhappy about having a cow chip lottery down the main thoroughfare. But the headline in the *Billings Gazette* made up for it: “Udder chaos in Livingston: Local rancher moves his cattle through town the old-fashioned way.”

WASHINGTON

The *Port Townsend Leader* reported that a coyote tried checking into the Jefferson Healthcare Medical Center and caused quite a commotion. It was first spotted by the hospital’s marketing and communications director, Amy Yaley, who remarked that “it was hard not to notice.” The coyote entered

through the main automatic doors, wandered into the express clinic, zipped down a hallway and then broke a glass panel trying to get out. It hid in the hospital’s outdoor courtyard but was eventually apprehended by the Center Valley Animal Rescue and transported to the vet clinic, where its lacerations were treated. And to think our health-care system gets a bad rap. We just hope the coyote had insurance.

NEVADA

Apparently, we’ve reached that surreal place in canine evolution when wild coyotes try to mix with society while pet pooches answer the call of the wild. In this heartwarming tale, *The Sacramento Bee* reported that a little white dog ran off to live with a pack of coyotes for seven months. The dog attracted national attention when a video of him running with a pack of coyotes outside Las Vegas went viral. Local residents posted videos and photos on Facebook tracking the adventurous pup’s progress, but they grew concerned when they realized he was limping. Susan McMullen of the Southern Nevada Trapping team helped capture the dog, which was treated and then placed with the Animal Foundation while authorities decided who to release him to: The Cabadas, the family who came forward after seeing their bull terrier — named “Hades,” perhaps for his hell-raising proclivities — on the news; or McMullen, who was looking after “Ghost,” as his Facebook followers called him. In the end, after a “bitter” custody battle, the Animal Foundation decided to return Hades/Ghost to the Cabadas, who provided ample evidence the dog was theirs. We hope his coyote friends get visitation rights; the family reunions will be *wild*. 🌟



Heard Around the West

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

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#IAM THE WEST

MARGO HILL (SPOKANE)
Eastern Washington University
associate professor of
urban regional planning

We need to touch the earth. On the reservation growing up, we ran in the mountains and played in the rivers and collected eagle and hawk feathers. Kids now are wrapped in the digital world. I want my grandkids, when I have some, to be out in the world, touching Mother Earth. When I think about going into court for water adjudication or water-quality standards, I think about how this river is connected to our aquifer — how we all need clean drinking water and a place to walk and think and be. We as parents have to unplug as well. Once we're in touch with the water and nature, we will understand the value and how important it is for our health. There is so much we can learn from what is right here.

Rajah Bose / HCN

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