High Country News
For people who care about the West

The Cost of a Comeback

In California's Eastern Sierra, bringing back bighorn means interfering in the age-old relationship between predator and prey

By Julia Rosen

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A mountain lion that shares habitat with bighorn sheep in the Eastern Sierra Nevada of California. STEVE YEAGER

On the cover

A Sierra bighorn sheep, radio collared and tagged, before being released in the Eastern Sierra Nevada.
STEVE YEAGER

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Editor's note

Hive crimes and misdemeanors

In late April, California authorities arrested a 51-year-old man in connection with what may turn out to be the biggest bee heist in the state's history. The suspect could face federal charges for allegedly rustling hundreds of hives, causing losses up to $1 million. Investigators had been tracking the thefts across six California counties since January. Finally, they uncovered a nursery in Fresno County that they described as a "chop shop for bee hives."

One victim of the heist, a Montana apiarist named Lloyd Cunniff, lost 488 hives, worth $400,000 – enough bees to pollinate 244 acres of almonds. Cunniff told the *LA Times* in January that the bee thieves would have needed a forklift and two-ton truck to make off with as much as they did. "This isn't some fly-by-night guy who decided to steal some bees," he said. In early May, following the arrest, Cunniff recovered about two-thirds of his equipment, including rescued bee survivors, who were quarantined and fed antibiotics as they recovered from their ordeal.

All's well that ends well, but not all crimes are so neatly solved. Agriculture is big business, and where there's money, there's mischief. Agricultural crimes cost the U.S. billions of dollars a year and result in higher costs for consumers and lower profits for farmers and ranchers. Crimes range from the theft of bees (or the almonds they pollinate) to corporate seed espionage, and from stealing alfalfa to good old-fashioned cattle rustling. Humans aren't the only thieves in nature, of course: The scorpion fly pilfers from spider webs to give fly corpses to potential mates; gulls are called the "pirates of the seashore"; and raccoons, well, they come already wearing masks.

In this issue, we delve into some of the strange intersections between humans and animals. Associate Editor Tay Wiles introduces us to members of Nevada's Agriculture Enforcement Unit, who ride the range investigating a spate of mysterious cattle injuries. Wiles helps us understand the ties ranchers have to their livestock and the lengths Westerners will go to in order to protect our animals. It's not just domesticated ungulates, though. For our cover story, writer Julia Rosen takes us into the paradoxical world of bighorn sheep conservation. In California's Sierra Nevada, a sophisticated program has helped rare bighorn recover. But it has also pitted conservationists against each other, since sheep success sometimes comes at a cost for mountain lions.

From bee stings to bovine mysteries, such tales remind us how closely we are tied to the natural world, despite our efforts to the contrary. And, as is often the case, the more we learn about nature, the more we learn about human nature. The web of life is a mingled yarn, indeed.

–Brian Calvert, editor-in-chief

Hikers in the Elliott State Forest, oldest in Oregon, which won't be sold after all. JOE RIEDL

Elliott Forest stays public

In a surprise decision, Oregon decided in May to keep its oldest state forest instead of selling it off. The Elliott State Forest is 82,500 acres of coastal trees and streams, which provide hunting, hiking and fishing access, timber revenue for Oregon's schools and habitat for threatened species. In 2015, the State Land Board voted to sell the Elliott because its coho salmon, spotted northern owl and marbled murrelets made it difficult to manage, and lawsuits plus maintenance costs were resulting in millions in financial loss. Last November, Lone Rock Timber Co. and the Cow Creek Band of Umpqua Tribe of Indians put in a joint offer to buy it. After public pressure, Oregon Gov. Kate Brown, D, put forward a habitat plan and $100 million in bonds to save the forest from privatization and increased logging. Conservationists celebrated the move as a victory for public lands.

ANNA V. SMITH
MORE: hcne.ws/elliott-forest

Trending

Logging in monuments

Former President Barack Obama expanded Oregon's Cascade-Siskiyou National Monument. Scientists argued that population pressures, adjacent land uses and climate trends made the initial boundaries inadequate. But recently, Oregon's timber lobby sued, arguing that the expansion is unlawful because some lands fall under the Oregon and California Lands Act of 1937, and hence are not protected under the Antiquities Act. "This argument is critically flawed," Michael C. Blumm writes in an opinion column. "The federal government has sufficient discretion to manage these lands for multiple purposes — not just timber production."

You say

CHARLIE LAWTON: "A lot of the arguments for logging are predicated on the assumption that selective logging is necessary to control wildfire. ... Fuels are lower in moisture due to shifted precipitation regimes and higher average temperatures; human-caused fires (negligence, arson and accidents) are more common."

TIM BAKER: "We can certainly debate what sustained yield should mean today as compared to 1937. In the context of ecosystem management, it generally means much lower rates of timber harvesting."

ROSE COMSTOCK: "Monument status does not allow forest management. ... National forests should be excluded from any part of monuments."
MORE: hcne.ws/logging-monuments and Facebook.com/highcountrynews

79,000

Amount, in tons, of non-Defense Department-related high-level nuclear waste temporarily stored at 121 sites around the nation.

9,000

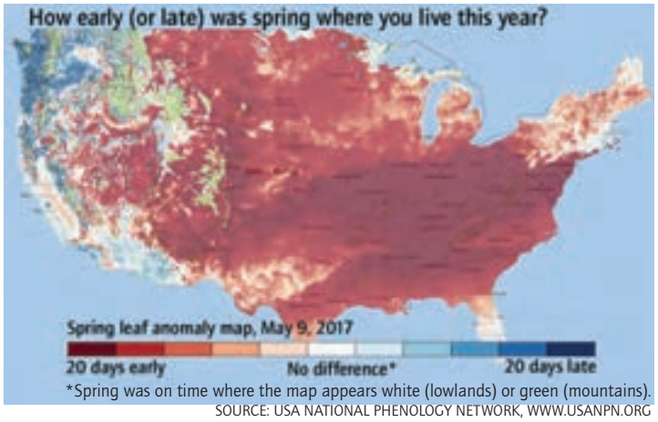
Portion of that waste, in tons, that exceeds the capacity of Yucca Mountain, the only site planned for permanent storage of such waste.

President Donald Trump's 2018 budget request includes $120 million to revive Yucca Mountain, the project to permanently store high-level nuclear waste underground about 90 miles from Las Vegas. Draft legislation recently introduced in a House Energy and Commerce subcommittee would restart licensing for the controversial project, which former President Barack Obama defunded in 2012. Yucca's opponents have cited concerns including transportation risks, groundwater contamination, and earthquake activity. Nevada Gov. Brian Sandoval, R, and the state's congressional delegation oppose the draft bill, which would allow the federal government to override the state on air and water permitting.
REBECCA WORBY MORE: hcne.ws/yucca-redux

Climate

Missed connections

In parts of the West, spring has come three weeks early. This follows a growing trend. From 1950 to 2005, spring shifted about eight days earlier in the Western United States, due to climate change. Ecological systems exist because many different species — pollinators and flowers, for example — have evolved to follow the same seasonal schedule, behaving in synchrony. Now, with climate change, some of those systems are unraveling — and this spring's early arrival is a sign of more asynchrony to come.
MAYA L. KAPOOR MORE: hcne.ws/freaky-phenology



*Spring was on time where the map appears white (lowlands) or green (mountains).
SOURCE: USA NATIONAL PHENOLOGY NETWORK, WWW.USANPN.ORG

> *"Couple the Trump 'deconstruction' philosophy with a growing pack of lawmakers who want to hand federal land over to state and local interests and the stage is set to re-litigate the laws and policies that have guided public land for half a century."*
>
> —Jim Lyons, an undersecretary in the Department of the Interior during the Clinton and Obama administrations, in his analysis "Could Trump dismantle the American West?"
> MORE: hcne.ws/trumps-threats

JASPER GIBSON

Photos

Fast-response fire crew

Time is of the essence for wildland firefighters. Washington's Helitack crew departs by helicopter within just five minutes of the report of a fire. The state's Helitack program started in the 1960s, with helicopters able to hold just 50 gallons of water to dump on fires. But today's helicopters drop hundreds of gallons at a time, while firefighters work amid flames and gusts of wind.
MORE: hcne.ws/helitack-crew

Send letters to editor@hcn.org or
Editor, HCN, P.O. Box 1090, Paonia, CO 81428.

FLDS LEADERS ARE 'CRIME BOSSES'

"Change Comes to Short Creek" by Sarah Scoles illustrates why we need an impenetrable wall of separation between church and state (*HCN*, 5/1/17). If you ignore the religious blather of the leaders of the Fundamentalist Church of Jesus Christ of Latter-day Saints and look at what they are actually doing, you can see that civil authorities should have stepped in long ago to curtail the FLDS' illegal practices. While some may scream about the First Amendment rights of the FLDS church being violated, those rights have allowed young girls to be raped, the government to be defrauded and women to be "forced into relationships." FLDS leaders appear to act like nothing more than crime bosses: terrorizing and abusing people who have been victimized since birth. This story stands as a dire warning to everyone about the tyranny that can occur when that wall of separation between church and state is breached. This situation was allowed to continue for decades because the civil authorities, who were members of the church in many cases, did not fulfill their obligations under the law.

Mary J. Talbott
Colorado Springs, Colorado

PAT BAGLEY, SALT LAKE TRIBUNE/CAGLECARTOONS.COM

AVOIDING THE 'MOAB MODEL'

We just returned from our annual sojourn to southern Utah, visiting Canyonlands, a portion of the new Bears Ears National Monument and our beloved Grand Staircase-Escalante National Monument. And we couldn't disagree more with Jim Stiles' claims that national monument designation harms the land and nearby communities ("Help for Bears Ears?" *HCN*, 5/1/17). In the nearly 30 years we've been going to the Grand Staircase, since before it was designated a monument, we've seen a slow, steady and welcome growth in Escalante and Boulder, as these towns adapt to increased visitation. What we have not seen is the absolutely overwhelming recreational development and impacts associated with motorized and non-motorized recreation that have assaulted the non-protected BLM lands surrounding Moab. Talking to locals from the Boulder-Escalante area, everyone agreed that what they don't want to see is a repeat of the "Moab model" in the Grand Staircase-Escalante region. Careful land stewardship and thoughtful engagement with local communities can preserve the lands we all love while ensuring that surrounding communities benefit.

Sally Miller and Roland Knapp
Lee Vining, California

MUTUAL SUPPORT, JOINT ACTION

In his editor's note in the May 1 issue, ("Exploitation and the West"), Brian Calvert states a truth: "The same person who would eagerly exploit a human being will just as easily exploit a landscape."

This may seem obvious to younger readers, but for many decades the environmental movement did not get it; public-land activists in particular sought to segregate a movement focused on preserving the West's best places from the everyday struggles of human beings. We now know the distinction was false; the same corporate behaviors that decimate nature also destroy the well-being of communities and, in the longer term, destroy jobs as well. Environmental justice goes hand in hand with protecting land, air and water.

The realization that preserving nature and justice for people are two facets of the same coin is transforming the environmental movement, and nowhere more clearly than in our most Western of states — California. Here, those who want to preserve public-trust streamflows for salmon are making common cause with those fighting to bring clean water to low-income residents in California's Central Valley. The goal is to bring sustainable ground and surface water management to all of California.

Young people call this "intersectionality." They have expanded the academic concept to include not just the consciousness that all oppressive sectors are related, but the realization that those working for all species of justice must join together in mutual support and for joint action. These young people are going to transform progressive politics in this country and with it the environmental movement, because they know in their bones and have experienced in their activist lives the truth of what Brian Calvert stated in his May Day editor's note. From the rolling hills of North Dakota to the Pacific shores, this is going to be a wild ride. Stay tuned.

Felice Pace
Klamath, California

High Country News

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Zinke listened at Bears Ears, but supporters felt unheard

The Interior secretary's monument review is off to a complicated start

BY REBECCA WORBY

When Interior Secretary Ryan Zinke held a press conference at the Butler Wash trailhead in Utah's Bears Ears National Monument on May 8, about 70 monument supporters were waiting to greet him. Many wore "Protect Bears Ears" T-shirts and carried signs: "Utah Stands With Bears Ears," "Honor Tribes, Honor Bears Ears," "#whatwouldteddydo."

Similar gatherings — organized by nonprofits including the Sierra Club, the Southern Utah Wilderness Alliance and Utah Diné Bikéyah — followed Zinke throughout his Utah "listening tour." Zinke visited Bears Ears and Grand Staircase-Escalante National Monument to begin the monument review process recently ordered by President Donald Trump. Citing "abuses" of the Antiquities Act, Trump tasked Zinke with evaluating national monuments of over 100,000 acres designated since 1996. The act states that monuments should encompass "the smallest area compatible with proper care and management," and Trump may seek to pare down or even revoke monuments that Zinke decides do not meet legal requirements.

Bears Ears is the most controversial of the monuments under review. Though Utah's citizens are divided, its leadership is not: Utah's congressional delegation and San Juan County's commissioners have been outspoken in their opposition, citing concerns about lost economic opportunity and public access. Gov. Gary Herbert, whose staff largely organized Zinke's visit, signed a resolution asking Trump to rescind the monument, an unprecedented action that would likely prompt years of litigation. Meanwhile, Native Americans who regard the region as sacred have defended the monument alongside environmentalists and recreationists. "We love our public lands," said one man who had traveled from Moab to show support. "We don't think our state representatives represent all of us."

Throughout Zinke's Utah visit, the secretary reiterated his intention to consider the viewpoints of people on all sides of the issue. Trump "put (the review) in motion to make sure that local communities count, states count, America counts," Zinke said at Butler Wash. "He wants to hear your voice." But if his visit to Bears Ears is any indication, some voices may be heard more loudly than others — and monument advocates fear theirs will be drowned out.

When Zinke landed at the small airport in Blanding, Utah, that morning, several tribal leaders were waiting in the parking lot, hoping to have a word with him. Although Zinke has said he intends to "make sure the tribes have a voice," only two tribal members met with him before his helicopter tour of Bears Ears: San Juan County Commissioner Rebecca Benally and Harrison Johnson, both of Aneth, the only tribal chapter that opposes the monument. The rest of the monument tour continued that way, with Zinke spending considerable time with prominent monument opponents, such as U.S. Rep. Rob Bishop, R-Utah; Republican State Rep. Mike Noel; Gov. Herbert, R; and the county commissioners. According to a spokesman for the governor, Zinke was "very much guided by the executive order itself," which specifically asks that he consider the "concerns of State, tribal, and local governments affected by a designation."

Zinke did have two official meetings with monument supporters: the Bears Ears Inter-Tribal Coalition, leaders from five tribes who advocated for the monument, and Friends of Cedar Mesa, a conservation nonprofit based in Bluff, Utah. But tribal leaders and environmentalists felt they got short shrift; their meetings accounted for only an hour and a half of Zinke's two-day visit. "The community is getting defensive because we made history as Natives," said Malcolm Lehi, a former Ute Mountain Ute councilmember. The day before Zinke's visit, Lehi drove around a wide swath of the monument, putting up "Protect Bears Ears" signs. By the time the secretary arrived, they had all been removed.

Zinke's task is as complex as the landscapes he's reviewing. The criteria are far from concrete — how small an area *is* "compatible" with protection of thousands of scattered archaeological sites? When it comes to a place like Bears Ears, which means so many different things to different people, there is no clear-cut solution. Though Zinke declined to hold a public meeting, online comments on Bears Ears were accepted through May 26. (Comments on the other monuments being reviewed will be accepted until July 10.)

Though Zinke appeared to have "a genuine interest in learning all sides of this issue," says Josh Ewing, executive director of Friends of Cedar Mesa, "his starting point was very unbalanced." The window to review Bears Ears closes on June 10, so Zinke doesn't have time to learn much more. And with 26 more monuments to review by Aug. 24, it's unlikely that the others will receive as much attention. After spending much of his tour with people adamantly against the monument — a pattern that was repeated when he visited the still-controversial Grand Staircase-Escalante National Monument later that week — it's up to the secretary to "reach beyond that influence," says Ewing. "It'll take extraordinary effort to balance out his perspective." □

Utah Sen. Allen Christensen, R-North Ogden, left, who, along with most of the Utah delegation, opposes the Bears Ears National Monument, speaks with monument supporters Kenneth Maryboy, Leonard Lee and Mark Maryboy, from center left, members of the Navajo grassroots nonprofit Utah Diné Bikéyah, during Interior Secretary Ryan Zinke's visit to the state. FRANCISCO KJOLSETH/THE SALT LAKE TRIBUNE VIA AP

Rebecca Worby is an editorial intern at *High Country News*. @becca worby

On leaving the government

Under the Trump administration, a scientist reckons with her future

BY ELIZABETH SHOGREN

The day after President Donald Trump's unexpected victory, Jane Zelikova was "crying her eyes out" in her office at the U.S. Department of Energy in Washington, D.C. As a scientist researching how big fossil-fuel industries can reduce greenhouse gas emissions, she feared that her work would be stymied because of the new president's skepticism about climate change. As a Jewish refugee who came to the United States as a teen, she felt threatened by Trump's anti-immigrant rhetoric during the campaign. The election also created a rift in her family: Her father voted for Trump; her mother sat out the election. "Every part of me that I identify with felt fear and anger combined into outrage," Zelikova said.

She texted furiously with three close friends — other women scientists she had known since they went to graduate school at the University of Colorado, Boulder. At first, they simply shared their alarm. But by the second day, they wondered what they could do about it. "We moved into an email thread and added women scientists we knew," Zelikova recalled. "It grew very quickly — from five people to 20 to 50 to 100 — within a matter of a couple of days."

They drafted an open letter from women scientists. "We fear that the scientific progress and momentum in tackling our biggest challenges, including staving off the worst impacts of climate change, will be severely hindered under this next U.S. administration," they wrote. The letter rejects the "hateful rhetoric" of the campaign and commits to overcoming discrimination against women and minorities in science. Then they built a website and gathered signatures. Thousands signed on, and a new activist group was born: 500 Women Scientists.

Zelikova's experience mirrors a broader phenomenon. Many scientists felt threatened enough by Trump's victory to abandon their usual detached objectivity. They wrote members of Congress to defend science funding and scientific advisory panels and used their knowledge of government research to protect data they feared could be erased from websites. They set up alternative Twitter sites for government agencies and planned and participated in protests. "The election mobilized scientists in a way we've never seen before," said Gretchen Goldman, who leads research on science in public policy for the Union of Concerned Scientists, an activist group. "I've personally been blown away by the scientists who want to be engaged in a new way."

Previously, Zelikova, a 39-year-old Ph.D. soil ecologist, had envisioned a future as a research scientist, working in academia or in government. But Trump's election, she said, is changing her in ways she never could have imagined. Her whirlwind metamorphosis provides a glimpse into just how disruptive the last six months have been for some in federal government. Zelikova — who is intense, articulate and has an engaging smile — doesn't have a permanent federal job. She took a leave from the University of Wyoming, where she's a research scientist, for a two-year fellowship at the Energy Department. She had less to lose than career civil servants with mortgages and government pensions, so she felt freer to speak out.

The Trump administration has proposed deep staff and budget cuts for the Energy Department, Environmental Protection Agency and other agencies whose mission involves safeguarding the environment. Many federal workers committed to protecting the environment share Zelikova's angst but won't say so publicly for fear of retribution.

"I am a Jewish, refugee, immigrant, woman scientist. At some level, this felt really personally offensive to me, and like an attack on all the parts of me that make me a complete human."

—Jane Zelikova , co-founder of 500 Women Scientists

For weeks after the election, Zelikova barely slept, working late into the night on her new group. "I am a Jewish, refugee, immigrant, woman scientist. At some level, this felt really personally offensive to me, and like an attack on all the parts of me that make me a complete human," Zelikova recalled. She had always been skeptical of political protests. She grew up in Eastern Ukraine, where Communist leaders used to orchestrate demonstrations in the 1980s. But Trump's election moved her to join protests. Her first was the Women's March the day after the Inauguration in Washington, D.C. After that, she frequently joined demonstrations, protesting Trump's travel ban and the Dakota Access Pipeline.

Meanwhile, things were changing in Zelikova's day job at the Department of Energy. In early December, Trump's transition team sent out a questionnaire that attempted to identify employees who worked on climate change. Staffers feared the new administration would target people who had worked on former President Barack Obama's climate change agenda. The day after the inauguration, with the Obama team gone, Zelikova attended a staff meeting at which, she said, only white men talked. "The backslide was immediate," she said. Trump's budget proposal, which came out in March, slashed funding for science and research. The morale at the agency was low and dropping.

Still, Zelikova kept working on her research. She was part of a team responding to Montana Democratic Gov. Steve Bullock's request that the Energy Department analyze options for keeping the state's largest coal-fired power plant, Colstrip, in business. Zelikova's team came up with scenarios for reducing greenhouse gas emissions by 30 percent or more by installing equipment to capture carbon dioxide emissions.

Capturing carbon takes a lot of energy, however. So Zelikova went to Colstrip last fall to talk about using renewable energy — wind or solar — to power the

Correspondent Elizabeth Shogren writes HCN's DC Dispatches from Washington. @ShogrenE

Representatives of a new activist group, created after President Donald Trump's election, participate in the March for Science in Washington, D.C., on Earth Day. The group, 500 Women Scientists, co-founded by Jane Zelikova (blue scarf in the center) has gathered nearly 20,000 signatures from women scientists, calling for scientific integrity in government policy as well as inclusivity and diversity in science. SOPHIA ROBERTS

carbon-capture process and thereby cut emissions even further. "Wouldn't it be cool if instead of sucking that parasitic load off the plant, you powered it with renewable energy?" she said. She thinks the idea holds great promise for other fossil-fuel plants. "We went to national labs and universities, and we talked to people about how do we make this happen," Zelikova said. "And then the election happened, and it felt like this isn't going to happen." Trump is determined to eliminate Obama's Clean Power Plan, removing a major incentive for plants like Colstrip to reduce their greenhouse gas emissions. His budget proposal recommends slashing funding for the Energy Department's renewable energy and fossil fuel research programs. "I'm seeing all that work become really threatened," Zelikova said. "It feels like betrayal, because I got so personally invested."

Her boss at the time, David Mohler, recalls her reaction: "She was distraught clearly and for understandable reasons; the Trump team is really not appreciative of science, and certainly they don't believe in climate science." Before becoming deputy assistant secretary of the Office of Clean Coal and Carbon Management, Mohler was chief technology officer for the country's biggest electric utility, Duke Energy. Trump will probably slow reductions in greenhouse gas emissions, Mohler says. But even Trump can't stop progress on climate change: Utilities won't reopen closed coal-fired power plants, and low-priced natural gas will keep replacing coal. And Mohler believes that wind and solar will continue to expand because of declining costs, state mandates and tax incentives, which have bipartisan support in Congress.

Mohler, an Obama appointee, left government on Jan. 20, and moved back to South Carolina. Zelikova started thinking about leaving Washington, too. "Resistance as daily existence was starting to diminish my ability to function," Zelikova recalled. She talked her supervisor into letting her move to Colorado in February for the rest of her fellowship. She continued to work for the Energy Department at the National Renewable Energy Lab in Golden. In her spare time, she kept building 500 Women Scientists. The group grew quickly, spawning nearly 150 local branches around the globe in just a few months.

One branch was founded in Seattle by Sarah Myhre, a 34-year-old climate change scientist at the University of Washington's Department of Atmospheric Sciences. The group gave Myhre the courage to stand up to a prominent professor, Cliff Mass, from her own department.

In January, at a state legislative committee hearing, Myhre criticized Mass for stressing uncertainties about how much human-caused climate change is affecting wildfires and ocean acidification in the Pacific Northwest. Myhre described Mass as an "outlier" in the department whose views did not represent the broad scientific consensus. In online comments to a *Seattle Times* opinion piece Myhre wrote in February with Zelikova and another woman scientist, Mass called them "three idealistic young scientists (none of them really are climate scientists, by the way)." When Myhre traveled to Washington, D.C., at the end of April for the People's Climate March, one of the women she marched with carried a sign that read: "Idealistic Young *Real* Scientists."

A week earlier, on Earth Day, Zelikova joined other members of 500 Women Scientists for the March for Science in Washington, D.C., waiting for hours in a chilly rain to get through security screening for the rally at the Washington National Monument. Shivering in her watermelon-red ski shell, Zelikova reflected on the ways her life would be different if Trump had not been elected. "I would have never founded a big group — ever," she said. "I would have never been a loud advocate for things. I would have never protested. These are now the hugest part of my life."

At the end of May, Zelikova quit her fellowship at the Energy Department. In July, she will start a new job for a tiny nonprofit called the Center for Carbon Removal, based in Berkeley, California. She hopes to help states move forward on capturing carbon from fossil fuel plants. "Western states are perfectly poised to lead on climate action," she said. "In terms of federal action, there's going to be very little, so we need to work with states, so that when the political climate changes and there can be federal action, we can be ready to go." □

The Eastern Montana Resource Advisory Council in the field. BUREAU OF LAND MANAGEMENT

THE LATEST

Backstory

In 1994, then-Interior Secretary Bruce Babbitt gave Westerners a new way to make meaningful recommendations to the Bureau of Land Management on issues ranging from grazing and mining to outdoor recreation. **These 10-to-15-member Resource Advisory Councils included stakeholders representing a variety of interests, in contrast to the "grazing advisory boards" they replaced**, which were mostly composed of livestock industry representatives ("Multicultural grazing boards off to a good start," *HCN*, 9/16/96).

Followup

In early May, **the Interior Department suspended the BLM's 38 resource advisory councils, along with 170 other boards and committees, until at least September**. The reasons for the decision remain nebulous, though agency spokeswoman Heather Swift told *E&E News* that a review is needed to make sure that the boards comply with President Donald Trump's "recent executive orders." Longtime BLM staffers consider the move unprecedented, and some worry that it will block public input on federal land management.

TAY WILES

El Segundo Mine in New Mexico.
PEABODY ENERGY

THE LATEST

Backstory

Coal giant Peabody Energy filed for bankruptcy in 2016, raising doubts about whether it would fulfill its legal obligation to reclaim land that it mined in Wyoming's Powder River Basin. The company had self-bonded, meaning that it promised to pay to restore damaged land and water sources rather than posting cash or bonds up front. **After Peabody and two other self-bonded companies declared bankruptcy, the government released a policy advisory warning states against self-bonding** ("Coal company bankruptcies jeopardize reclamation," *HCN*, 1/25/16).

Followup

Peabody emerged from bankruptcy in March, with one of the conditions being that it will no longer self-bond. **In May, the company reported a 29 percent increase in revenue over the same period last year, with quarterly net income the highest in five years.** Peabody attributes this to increased revenue from its Australian mines and greater demand for coal from Western utility companies due to higher natural gas costs. It also praised the Trump administration for its "strong actions" supporting coal.

ANNA V. SMITH

A conflicted Interior

Industry connections dog Trump's deputy Interior secretary nominee

BY ELIZABETH SHOGREN

The Mojave Trails National Monument in Southern California — which is one of the recently established monuments now under scrutiny by the Trump administration — surrounds a swath of land owned by Cadiz Inc. For nearly two decades, the Los Angeles-based company has been trying to build a colossal project, seeking to pump enough groundwater from a Mojave Desert aquifer to supply hundreds of thousands of customers. President Donald Trump improved its prospects by reversing Obama administration policies soon after taking office. Now, Trump has nominated David Bernhardt, who lists Cadiz as a personal client, to be his deputy Interior secretary. His law firm has long represented the company and stands to benefit from its success.

Bernhardt's link to Cadiz is just one example of the connections between many Trump appointees and the industries that could profit from their decisions. As deputy secretary, Bernhardt would take over if Interior Secretary Ryan Zinke resigned. He would also handle conflicts between agencies: If the Bureau of Land Management sought to allow drilling or construction on land that the Park Service or Fish and Wildlife wanted to preserve, for example, Bernhardt would likely step in. As a lawyer, however, Bernhardt lobbied for agricultural and oil and gas companies and represented them in court, where he fought to weaken environmental protections and expand access to resources. Some Democratic senators and environmentalists see this as an unacceptable conflict of interest. "I am gravely concerned about Mr. Bernhardt's record of working on behalf of corporations at the expense of the environment," Washington Sen. Maria Cantwell, the ranking Democrat of the Senate Energy and Natural Resources Committee, said in early May. The day before his May 18 confirmation hearing, 150 conservation groups sent a letter asking senators to oppose his nomination, citing Bernhardt's efforts to enrich corporations at the expense of the environment.

But Bernhardt's industry credentials align with the Trump administration's priorities: promoting fossil fuel development and rolling back regulations that hamper energy production and infrastructure projects. Justin Pidot, an associate law professor at the University of Denver and a former deputy Interior solicitor, said: "He's the kind of nominee you'd expect from this administration."

Republicans praise Bernhardt's qualifications, noting that he served Interior during both Bush administrations and rose to be solicitor, the department's top lawyer. "I think you have an extremely balanced, thoughtful individual who realizes Mother Earth is our life-support system," former Interior Secretary Dirk Kempthorne said. "(Bernhardt)'s going to look out for the life-support system for his kids." Under Kempthorne, the polar bear was listed as threatened in 2008, marking the first time a species was protected due to climate change. The decision, which survived court challenges, is regarded as a conservation success. On the other hand, Kempthorne was following Bernhardt's legal advice when he exempted greenhouse gas emissions from regulation under the Endangered Species Act.

And Bernhardt — who likely would be tasked with sorting out department scandals as deputy Interior secretary — has been questioned about scandals at Interior under former President George W. Bush. In 2007, Deputy Assistant Interior Secretary Julie MacDonald resigned after an investigation revealed that she had repeatedly altered scientists' work to reduce protections for rare species like the greater sage grouse and the Delta smelt. Bernhardt advised MacDonald and resolved disputes she had with others at Interior, according to a report by Interior's inspector general.

In the Cadiz water project, the company had planned to use a railroad's existing rights-of-way to avoid federal permitting and build a 43-mile pipeline, partly through BLM lands. Environmental groups filed a series of lawsuits, citing concerns that pumping water from Cadiz's private property could deplete groundwater under public land that is essential for desert wildlife.

The Obama administration in 2014 snarled the project with a legal memo establishing that only projects on rights-of-way *essential* to railroad operations were exempt from federal review. In 2015, the BLM therefore advised Cadiz it would require federal permitting. This March, however, the BLM rescinded the 2014 legal memo after a bipartisan request from 18 members of Congress. Sen. Dianne Feinstein, D-Calif., blasted the decision: "The Trump administration wants to open the door for a private company to exploit a natural desert aquifer and destroy pristine public land purely for profit."

Bernhardt's law firm has stocks in Cadiz, according to Securities and Exchange Commission filings, and stands to profit from the project. Cadiz's stock, which plummeted after the BLM's 2015 decision, has more than doubled since Trump's election, boosting the value of Bernhardt's firm's stock to $3 million. Under government ethics rules, Bernhardt would not personally benefit from future gains, said Interior spokeswoman Megan Bloomgren. And Bernhardt sent a letter to Interior's ethics office, saying he would recuse himself from matters involving his law firm or former clients for a year, unless he's given special permission.

Nonetheless, Bernhardt exemplifies the "swamp" Trump pledged to drain during his campaign, said Aaron Weiss, media director for the conservation nonprofit Center for Western Priorities, adding dryly: "If David Bernhardt recuses himself from all the issues he worked on as a lobbyist, it's not clear he'll have anything to do as deputy Interior secretary." □

After being asked if he could be trusted to honor Interior Department scientists and what they recommend based on scientific facts, Bernhardt said, "I am certain that scientists at the Department of the Interior are not under attack." SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

Correspondent Elizabeth Shogren writes *HCN*'s DC Dispatches from Washington. @ShogrenE

Montana refuge divides tribes and ranchers

The American Prairie Reserve offers a controversial vision for an intact prairie ecosystem

BY JAKE BULLINGER

On a gray spring day in 2014, about 120 people, mostly members of the Assiniboine and Gros Ventre tribes, gathered to watch the release of 73 bison onto the open sagebrush of the American Prairie Reserve, a few dozen miles from Malta, Montana.

After a meal and a ceremonial song, Sean Gerrity, president of the reserve, asked the roughly 30 schoolchildren there if it was their first time at the American Prairie Reserve. For nearly all it was. "Well, eventually we want you to not feel like a visitor," he told them. "We want you to feel like you own this place again, and I think it's been a long time since you've had that feeling."

Indeed, Gerrity's team hopes to restore something long lost to present-day Native Americans: a shortgrass prairie inhabited by the wildlife their ancestors subsisted on before European-American settlement, including some 10,000 bison. By stitching together a national monument, a national wildlife reserve and private ranches with Bureau of Land Management grazing rights, the nonprofit APR hopes to build a 3.5 million-acre park in north-central Montana, a refuge more than 50 percent larger than Yellowstone National Park. But as they piece the project together, the newcomers are forcing longtime residents to reckon with their place in Western history, and are raising tensions over the region's future.

The idea for the reserve was first hatched in the 1990s and early 2000s, when conservation groups, including The Nature Conservancy and World Wildlife Fund, identified the Northern Great Plains as one of the few prairies worldwide that could support a wilderness. Gerrity learned about the project in 2001, a couple years after he sold his Silicon Valley consulting firm and moved to Bozeman. Though often painted as an outsider, Gerrity actually was returning to Montana — he was raised in Great Falls, in the central part of the state. He was initially skeptical of the reserve, though the concept intrigued him.

After 16 years in Silicon Valley, Gerrity, a trim 58-year-old, was no stranger to unorthodox ideas, and childhood hunting trips with his father had left him with a fascination for nature's complexity. After conversations with the biologists behind the project, Gerrity became convinced that, over the course of decades, it would benefit a depopulating section of Montana. Locals, he thought, would eventually warm to the idea. He joined the team in 2001.

Gerrity's job now is to buy ranches, most in Phillips County, and take over accompanying grazing leases on public lands. So far, the organization has acquired 353,000 acres — 86,000 of them privately owned — and opened a micro-version of the reserve with 1,000 bison. Ultimately, 85 percent of it will be on federal land, including the Charles M. Russell National Wildlife Refuge.

Conservation by acquisition is expensive; American Prairie Reserve estimates it will need to raise $500 million to buy land and fund its operations. Gerrity has called on some of America's wealthiest donors, who have chipped in more than $100 million to date. Board members include prominent Western philanthropists like Helga and Liliane Haub — heirs to a German retail empire — and Jacqueline Mars, one of the world's 30 wealthiest people.

Gerrity and his staff have sold supporters on the romantic notion that a fragmented ecosystem can be completely restored. "We want to put everything back so you can see how it all works," he says. "You can get that out of a book, you can

Please see **American prairie**, *page 24*

Around 1,000 bison now roam the land at the American Prairie Reserve.
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Jake Bullinger writes about the environment, technology, and politics in the West.
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THEODORE WADDELL: MY MONTANA – PAINTINGS AND SCULPTURE, 1959-2016
By Rick Newby, 256 pages, paperback: $29.95; cloth: $45.
University of Oklahoma Press, 2017.

Renowned Montana painter and sculptor Theodore Waddell has been producing artwork for more than five decades. Now, writer and critic Rick Newby tells the story of his life and career in thoughtful detail. The book, which includes essays by curators, critics, and writers who know Waddell, seeks to provide both longtime fans and those new to the artist's work with a deep understanding of the evolution of his career. Ranging over his childhood, his early work, his personal and artistic struggles and more, the book traces Waddell's influences, from his artistic mentors to his love of jazz.

Waddell's richly textured, expressionist work, including the "landscapes with animals" he is best known for, is deeply rooted in his home region, but it resists mythologizing the West. As *My Montana* shows, his art honestly and evocatively reflects his Northern Rockies heritage and his own life as a rancher. **REBECCA WORBY**

Jatte's Angus #2, 1995.
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Old friends and new adventures

Wildflowers abound in the Colorado Rockies right now, and as warmer weather settles in, yellow glacier lilies and purple two-lobed larkspur have begun to grace our hikes. What a great time to welcome back an old friend — **Michelle McClellen**, who interned at *HCN* in 1996. Michelle was visiting Four Corners and Mesa Verde National Park, and decided to stop by her old stomping grounds. We tracked down a photo of her and her co-intern, **Bill Taylor**, Birkenstocks and all, to jog old memories. Michelle now lives in Oregon and works as senior communications manager at the Oregon Health Authority. *HCN* was transformative for her career, she says, thanks to then-Editor **Betsy Marston**'s sharp editing skills.

We also welcomed **Rob** and **Amber Trout**, with their young daughter, **Theia**. Amber, a former subscriber, hopes to renew, now that some of her work and mom obligations are easing up. The three are looking for a new home and considering Paonia. Hope to see you all back here soon!

Executive Director **Paul Larmer** recently returned from a three-week 4,500-mile "drive-about" vacation through a big chunk of the West. Out bird-watching in Arizona's Chiricahua Mountains, he failed to spot the elusive trogon but did encounter a bridled titmouse, a painted redstart — and, one night, a thirsty bobcat. (No word on what the bobcat was drinking; they probably shared a frosty IPA.)

In Tucson, Project Lighthawk flew Paul over the Santa Cruz and San Pedro rivers, which rise in Mexico but flow into the United States. Three longtime *HCN* readers soared with him over cottonwood galleries, copper mines and subdivisions: pilot **Greg Bedinger**; **Seth Cothrun**, communications director at the Sonoran Institute; and **Ed Curley**, a razor-witted retiree from the Pima County Wastewater Reclamation District.

Later, in Yuma, Arizona, Paul rendezvoused with *HCN* board member **Osvel Hinojosa**, director of water and wetlands for ProNatura Noroeste, based in San Luis Rio, Mexico. They trekked south to the lowest reaches of the Colorado River, which are poorly sustained by an incredibly complex plumbing system that exploits agricultural wastewater. "They say that by the time it gets here, the water has already been used seven times," Osvel says.

His group works with a bi-national coalition to secure more water and regular pulse flows to revive the Delta, which somehow endures; Paul says they identified 105 species of birds in two days! But political changes in the U.S. and Mexico have put negotiations on hold. One of the strangest sights: thousands of acres of dead invasive saltcedar, or tamarisk, inundated by seawater after a 2010 earthquake tilted land and changed the tides from the Gulf of California. That's one way to control an exotic species.

And finally, a correction. In our cover story "Prison Town" (*HCN*, 5/15/17), we misidentified a roadway: It's U.S. Route 395, not Interstate 395. We apologize for the error.

—Anna V. Smith for the staff

Theia Trout plays with one of our exercise balls while her parents, Amber and Rob, chat with Editor-in-Chief Brian Calvert. BROOKE WARREN

FEATURE BY JULIA ROSEN

The Cost of a Comeback

In California's Eastern Sierra, bringing back bighorn means interfering in the age-old relationship between predator and prey

Standing in the middle of an icy trail on a bright December day, Tom Stephenson sweeps an H-shaped antenna overhead, searching for something he already knows is there. Through the blizzard of static on his handheld speaker, faint beeps confirm that a herd of bighorn sheep wearing telemetry collars hides somewhere in this valley on the eastern edge of California's Sierra Nevada. But spotting the buff-colored ungulates can be tricky.

"There's an element of luck to it," says Stephenson, an environmental scientist with the California Department of Fish and Wildlife. A rangy man with graying blond hair, he squints through binoculars at a craggy slope draped in morning shadows and snow. It's a challenging backdrop even for Stephenson, who leads the Sierra Nevada Bighorn Sheep Recovery Program.

Like other bighorn populations across the West, Sierra bighorn were nearly wiped out after European settlers arrived in California, bringing domestic sheep that introduced virulent diseases. By the mid-1990s, scarcely more than 100 bighorn remained — just 10 percent of historic estimates. So the state launched the recovery program in a desperate bid to save this unique subspecies.

"There they are!" Stephenson says, handing me the binoculars and switching to a long scope. He counts 11 bighorn grazing at the base of a cliff — six ewes, two rams and three stub-horned lambs. By 2016, thanks to the efforts of Stephenson's team and a run of favorable weather, the bighorn population had soared to roughly 600 animals living in 14 herds scattered across the range.

The bighorn's recovery has been a remarkable success, but it's come at a price. Ranchers in the Eastern Sierra have lost access to certain pastures, as managers cleared away domestic sheep to prevent another disease outbreak. Two dozen mountain lions lost their lives, too.

Healthy bighorn populations can handle natural levels of predation from mountain lions, their primary predator. But studies show that cougars can decimate struggling herds, like those in the Sierra. Managers often target the big cats when vulnerable bighorn populations can no longer withstand even minor losses.

Most scientists agree that predator control — often a sterile euphemism for killing lions — is sometimes necessary to protect endangered species. But lion advocates object when such measures take an unnecessary toll or drag on for too long. At best, they say, removing predators is a temporary stopgap. "The more complex discussion is, how do you get to this place in the first place," says Mark Elbroch, the lead puma scientist at Panthera, a wildcat conservation organization. "Why is it even on the table?"

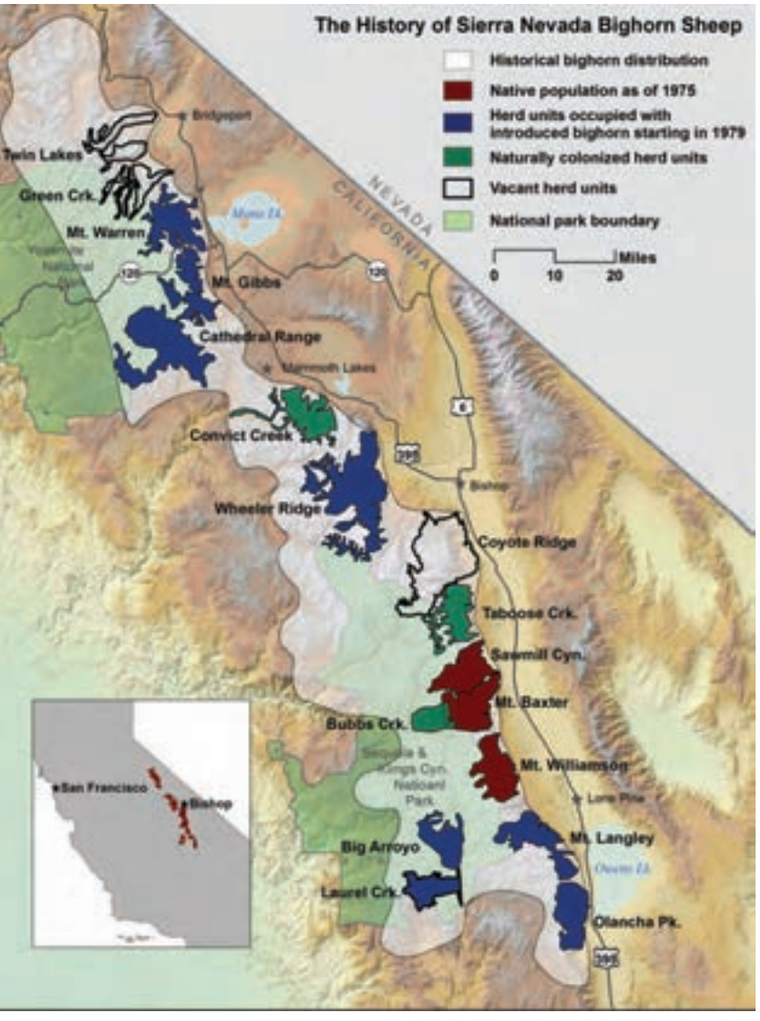
The answer, at least in the Sierra Nevada, is sadly familiar: Centuries of human impacts have left no simple

Sierra Nevada bighorn, whose population has made a remarkable comeback, on a rocky ledge, left. At right, mountain lions are one of the threats to the bighorn population, and some have been killed to protect them. JOSH SCHULGEN/ CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, LEFT; STEVE YEAGER

solutions to ensure the sheep's recovery. Those who want to see bighorn and big cats coexist again must reckon with the legacies of past wrongs while trying not to commit new ones — no easy task.

"None of this is what we would like to have to be doing," says Stephenson. "But if we want to try to restore this ecosystem, it's one of the realities that we're having to deal with."

THIRTY MILES SOUTHEAST of where Stephenson and I spotted the bighorn, a modest building sits on the outskirts of Bishop, California. John Wehausen, thin and bespectacled, leads me there on



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cattle-worn trails through the sagebrush scrub. He swings open the door to reveal heaps of salvaged scientific equipment and tables brimming with paper lunch bags full of lamb manure. This is where Wehausen analyzes bighorn DNA, including what he extracts from these Grape-Nut-sized pellets. "It's the only genetics lab with a wood-burning stove," he jokes.

Wehausen started studying Sierra bighorn in the late 1970s as a graduate student at the University of Michigan. He's now technically retired after spending decades at the University of California's White Mountain Research Center, but he still helps with bighorn recovery, mostly for free. "It's been my life's work," he says. And it's been a rollercoaster.

When Wehausen conducted the first Sierra bighorn census, there were roughly 250 left. They were disease-free, so he helped convince the state to launch a restoration project. They would take sheep from two surviving populations in the remote Southern Sierra and begin re-establishing herds throughout the range. Wildlife managers wanted to use only native sheep, since Sierra bighorn differ genetically from their Rocky Mountain and desert kin.

The effort started off well. Three new herds were seeded, including one on Wheeler Ridge, which is visible from Wehausen's lab. Back then, he says, "I would have told you that we would have them back to all their historic range by the turn of the century." But that's not what happened. In the mid-1980s, the herds began to shrink, forcing the department to put translocations on hold.

Over the previous decade, Wehausen had begun documenting more and more lion tracks and kills. He counted 49 bighorn killed by lions between 1977 and 1988, representing 70 percent of recorded deaths. Coming back from a long hike in Sawmill Canyon, he actually saw a cougar tackle a ewe on a rocky ledge. "One bound," he recalls, "and it was on her." Entire herds also stopped descending from the high country to graze in the low-elevation winter ranges they shared with mule deer, the lion's primary prey. Wehausen believes the bighorn abandoned these areas because of increased cougar activity. And the loss of such a valuable food source only amplified the effects of direct predation on the herds.

Wehausen suspects that predation increased because of an anomalous surge in lion numbers. Lions had begun to recover after California stopped offering bounties for killing them in 1963, and then, in 1972, imposed a moratorium on sport-hunting the animal. Along the Eastern Sierra, evidence suggests the lion population peaked in the 1980s, fed by an abundance of mule deer, which had benefited from irrigated agriculture and clear-cutting in their summer habitat across the mountains. "These dynamics were derived from all these past human influences," Wehausen says, and bighorn got caught in between.

Others believe that weather, not predation, drove the sudden bighorn decline. A drought began in 1987, the year the largest herd abandoned its winter range, and the valley never greened up. The mule deer population plummeted, and bighorn likely suffered, too, says California Department of Fish and Wildlife biologist Jeff Villepique, who studied Sierra bighorn for his doctorate in the 2000s. Bighorn are well suited to alpine life, he says, and they clung to the safety of the mountains because there was no food to lure them down and no heavy snow to push them out.

In his research, Villepique also struggled to find evidence that lions had kept sheep away from their winter ranges. For instance, when Villepique tracked bighorn movements with GPS collars, he found that they actually seemed to prefer areas with more lions. The lions followed the deer, and the deer followed the choicest vegetation. Bighorn seemed willing to risk getting eaten to join the feast.

These competing hypotheses echo a long-standing debate: whether predators control populations from the top down, or whether food controls them from the bottom up. The lack of a clear explanation in this case still bothers Vern Bleich, who ran the recovery program from its inception until 2008, when he retired and Stephenson took over. He wanted to understand how the sheep ended up in such a bind, but the answer proved elusive. "That has been a great disappointment to me," he says.

One way or another, the bighorn population plunged to its lowest point in 1995. Even if predation wasn't the primary cause, managers felt it now posed a serious threat. There was little published science on this at the time, but studies from Alberta to the Mojave have since demonstrated that lions can depress or even extirpate small bighorn populations.

Managers felt the best option was to kill lions. However, a 1990 California ballot measure had made the earlier moratorium on lion hunting permanent. Sheep advocates petitioned — successfully — to have Sierra bighorn protected under the federal Endangered Species Act in 1999. The new status gave managers the power to override state law, which the Legislature later amended anyway. And soon after listing, the state launched the recovery program with predator control as a central component.

THE NEXT FIFTEEN YEARS were kind to Sierra bighorn as managers forged ahead on the other aspects of the recovery program, shuffling sheep around to help populations grow. Using net guns and helicopters, they would move a ewe to boost a herd's numbers, or relocate a ram to increase genetic diversity. A few adventurous bighorn split off, colonizing several new herds on their own, and starting in 2013, managers established the final four herds required for recovery.

Meanwhile, managers worked to stamp out the risk of a disease outbreak by moving domestic sheep away from bighorn habitat. Though perhaps 1,000 sheep still graze in high-risk proximity to bighorn, thousands more were cleared off some 57,000 acres of pasture — mostly in the Inyo National Forest and on land owned by the Los Angeles Department of Water and Power. As a concession to ranchers, managers decided not to re-establish herds at the northern end of the range, where the most intense ranching still occurs. It began to seem possible to

down-list the sheep from endangered to threatened by 2017, the official goal of the recovery plan.

The final version of that plan was hammered out over eight years with input from a diverse group of stakeholders, and it also detailed when lions could be removed. The nonprofit Mountain Lion Foundation participated in the negotiations and acknowledged the need to kill lions, says Chris Papouchis, a conservation biologist who served as its representative. But the foundation insisted that managers take out only lions that threatened sheep. That would minimize the impact on lions, they argued, and perhaps also prove most effective at reducing predation.

Lion populations can't survive on bighorn alone, and many experts believe that only some cats specialize in sheep. Villepique recalls one astonishingly long-lived cougar — it reached 18 in the wild — that regularly hung around bighorn, but appeared to dine only on mule deer. From a bighorn's point of view, it was a "good" lion. And predator biologists say that removing a good lion simply makes room for a potential sheep-eater to move into town.

Rob Wielgus, who leads the Large Carnivore Conservation Lab at Washington State University, has also found that removing too many lions — especially males — can actually *increase* predation. His work on the cat's relationship with endangered mountain caribou showed that killing male lions brought an influx of new males. They killed kittens and forced females to higher elevations, where they killed *more* caribou, instead of choosing the vastly more abundant deer at lower elevations. In cases like these, he says, "we screw it all up."

Becky Pierce, the former predator biologist for the Sierra sheep recovery program, was especially worried about other lions straying into bighorn habitat from the surrounding wilderness. So Pierce's team collared resident lions to find out exactly which cats were killing sheep and to track down the offenders.

Under Stephenson's direction, however, Pierce felt that the program became more aggressive and less discriminating. She accused Wildlife Services — the federal agency contracted to kill the lions — of doing its job inhumanely, and also illegally. She says that one orphaned litter of kittens was left to starve; another was mauled to death by a houndsman's dogs. She also learned that government hunters had caught lions using snares, which she believed violated state law. "I'm not an animal-rights activist," Pierce says, pointing out that she had authorized many removals herself, but the incidents still disturbed her.

So she filed a complaint against Stephenson and the department with the California branch of the watchdog group Public Employees for Environmental Responsibility in 2010. Later that year, a state legislative counsel concluded that snares were indeed illegal, and soon after, the predator control program ended. Pierce, who no longer works on the project, also sued the department for defamation and retaliation for whistleblowing. That suit was settled out of court in September.

Stephenson says that the program did ramp up lion removals under his watch, but only because of a troubling uptick in predation, especially in source herds used for translocations. Stephenson emphasizes that the department still targeted only "problem" lions, and that it was unclear that snares were illegal prior to the 2010 ruling.

"We don't have anything against lions," Stephenson says. However, he had a clear mandate to restore bighorn. "Sierra sheep were the endangered animal and mountain lions are quite abundant in California," he says. And the faster sheep recovered, the sooner the state could cease predator control altogether.

AROUND THE TIME PIERCE FILED her complaint, the Arizona Game and Fish Department began contemplating its own bighorn restoration project in a mountain range near Tucson. The Santa

Tom Stephenson, top, listens for a signal from radio-collared bighorn in McGee Creek Canyon this winter. Above, John Wehausen in the lab where he analyzes bighorn DNA. JULIA ROSEN

A bighorn ram killed by this year's harsh winter, which dropped more than 40 feet of snow in parts of the Sierra Nevada. Between the weather and a spike in predation by mountain lions, roughly 15 percent of the sheep population has perished. STEVE YEAGER

Julia Rosen is a freelance journalist based in Portland, Oregon. Her work has appeared in *Nature*, *Orion*, the *Los Angeles Times* and many other places.

This story was funded with reader donations to the High Country News Research Fund.

Catalinas tower above the saguaro desert in muscular layers of sedimentary rocks, and until the 1990s, they hosted a population of desert bighorn. The sheep's disappearance remains mysterious, but bighorn advocates and state officials saw an opportunity to re-establish the herd after fires restored desert and forest habitat that had been overgrown by brush.

Proponents expected that the effort would have to involve killing lions. The captive-breeding facility couldn't provide enough bighorn to re-establish a large population in one go, so the herd would be vulnerable at first. But the department also anticipated that would rile Tucson's environmental community. Like many state wildlife agencies, the department had been criticized for managing predators with a heavy hand. Some say that stems from agencies' allegiance to hunters, who often see predators as competition for deer, elk, and other game animals, and who provide a major source of funding through their purchase of hunting licenses.

So a group of citizens formed an advisory committee to help design a biologically and politically viable project in the Santa Catalinas, just as happened in the Sierra a decade earlier. It included Mike Quigley of the Arizona chapter of The Wilderness Society and Brian Dolan, an avid hunter who became heavily involved with bighorn restoration after the life-changing experience of bagging a sheep in 1995. They still debate whose idea it was. "I had a couple of beers with Quigley and we talked about it," says Dolan. "He credits me with it, and I credit him."

The resulting deal appeased everyone, including Quigley and the hardline Center for Biological Diversity, another environmental nonprofit. Predator control would be temporary and surgical. Nearly every bighorn released into the Santa Catalinas would wear an expensive GPS collar, and government scientists would follow up on sheep deaths immediately and report them to the public. If a lion had been responsible, a houndsman would track and kill it.

Today, after four years of translocations, the project has achieved its goal: 85 sheep roam the Santa Catalinas. Lions did kill some, particularly in the first year, and eight cats were removed. But last fall, as promised, the department curtailed the houndsman's contract. "Now we're back to business as usual," Quigley tells me. "The sheep and lions are going to have to figure it out."

Still, the reintroduction has served as something of a Rorschach test. Dolan notes that, because of the punishing terrain, the houndsman couldn't catch every lion that killed sheep. To him, that suggests predator control may have been unnecessary.

To others, however, the challenge of catching lions underscores the need to remove some animals beforehand. "You're going to end up taking that lion anyhow, you might as well take it before you trade two or three or four sheep," says Eric Rominger, a biologist who has worked on the California restoration effort and informally consulted on the Arizona project.

Rominger, known for his ardent support of predator control and his Sam Elliott-style mustache, thinks bighorn need extra help where lions are "subsidized" by large populations of deer or livestock; lions subsist on these prey while opportunistically hunting bighorn to extinction. His own research suggests that range-wide lion control helped drive down predation on state-endangered bighorn in New Mexico and boost the population from less than 170 in 2001 to more than 1,000 today.

But Rominger admits that there have been few controlled scientific experiments testing the effects of predator control in situations like these. And scientists have only compared the impacts of targeted versus indiscriminate lion removals in models. In reality, Rominger says, managers usually find themselves in a crisis, like he was in New Mexico. "I had no inclination to leave half those herds as controls only to find out that, guess what, they went extinct because of lion predation."

ON A BLUEBIRD DAY in late January, Stephenson skis back into the valley we visited the previous month, this time on a grim mission: to investigate the deaths of three bighorn. He finds them in the creek, their broad-set eyes and coarse fur preserved by the frigid water. He suspects they died of hypothermia when they couldn't scale the 6-foot-tall snow bank on the far shore.

These are just a few casualties of what has been a brutal winter for Sierra bighorn. More than 40 feet of snow has fallen in places, and Stephenson says the animals struggled to move around and find food. On top of that, predation has spiked again in one of the main herds used for translocations. Two lions killed 12 ewes, out of a population of 50. "That's beyond the point where we get concerned," Stephenson says.

It's a devastating double-whammy. "If it was just one or the other, it would be serious, but it would be that much easier to try to manage," Stephenson says. At least 91 sheep have died — roughly 15 percent of the total population.

Just a few months ago, the bighorn's recovery seemed imminent. The number of breeding females had grown close to threshold for down-listing, and managers had recently won a hard-fought battle to vacate one of the last grazing leases next to occupied bighorn habitat — a plot of county land near Yosemite. In December, Stephenson had told me that the bighorn were doing well enough to handle some predation.

But this year's losses will almost certainly put off down-listing the animal. With luck, Stephenson says, "we might only be looking at a delay of another two or three years." Otherwise, managers will have to step in again. Stephenson says all options are back on the table, including removing lions. In a tragic twist, an act of nature may drag them back into the crosshairs again.

However, Stephenson remains hopeful. "We're still a heck of a lot better than where we've been 15 years ago," he says with a sigh. "You just have to realize that it's just going to be a tougher effort than you always think it's going to be." □

FEATURE BY TAY WILES | PHOTOGRAPHS BY NICK GONZALES

Meet the Cow Cops

Some of Nevada's crime scene investigators ride the range

On a July morning in 2014, a third-generation cattleman named Mitch Heguy was driving his truck along Susie Creek in Elko County, Nevada, when he saw something peculiar. It was one of his neighbor Jon Griggs' cows, standing there with an odd-looking, circular wound on her shoulder, several inches in diameter, with blood crusted over her dark hide. Heguy wondered if it was a particularly horrible rattlesnake bite, or if the heifer had stuck herself with a tree branch, which cattle can do on a bad day. But as the rancher looked closer, squinting in the sun, he decided it had to be the result of something more intentional, nefarious even. It was a bullet wound. He called Griggs. "I think someone shot one of your cows," he said.

The dazed heifer meandered back into the hundreds of thousands of acres of sagebrush and juniper of the Maggie Creek Ranch, a checkerboard of Bureau of Land Management and private land. She wasn't seen again for six weeks, when Griggs gathered his herd for sale at season's end. By then, the wound was partly healed.

As Heguy and his wife, Rhonda, remember it, that cow, worth at least $2,000, was the first such victim found near their property, though they had heard of livestock being shot elsewhere over the past couple of years. The Nevada Cattlemen's Association eventually reported 25 wounded or dead cows that year, in addition to at least 35 more since 2012 — though it wasn't clear how many had been shot with guns.

Through the summer, Jon Griggs and the Heguys counted about 30 cows wounded between their two herds. By August they were ready to call the cops. The people who respond to these kinds of incidents across the state comprise a six-person team called the Agriculture Enforcement Unit within the Nevada Department of Agriculture. They are well-known to ranchers, but unknown to most other people. Each member of the team has a background in ranching and is a graduate of a law enforcement academy. They carry handguns and a handy book of livestock brands; their patrol vehicles are equipped with police sirens but also veterinary supplies. They call themselves jokingly, but accurately, cow cops. And those were the cops the ranchers called.

Mitch Heguy wondered if the circular, blood-crusted wound was a particularly horrible rattlesnake bite, or if the heifer had stuck herself with a tree branch, which cattle can do on a bad day.

Chris Miller investigates livestock crimes in Nevada's northwest district.

During the 2014 shooting spree, Maggie Creek, Nevada, lost tens of thousands of dollars in cattle, which can fetch up to $2,800 per head in good market years.

IN THE EARLY DAYS OF RANCHING in the West, few laws existed, and those that did were hard to enforce. Beginning in 1873, county officials began recording livestock brands across Nevada. State brand inspectors worked with local law enforcement to try to keep order, since they lacked the authority to enforce the law themselves. In 1971, brand inspectors were empowered to make arrests and investigate certain agricultural crimes. For decades, they did their best at both registering brands and enforcing the law. "That could be dangerous," says Flint Wright, now the head of the Nevada Agriculture Department's animal division. It wasn't until 1994 that the department was able to hire a separate team of inspectors who also had police training and carried guns. Now, "when an inspection or investigation is potentially dangerous, an agriculture enforcement officer is sent instead of a brand inspector," Wright says.

Being a good cow cop requires versatility and being okay with a lot of time on the road. Officers are often the first to respond to car crashes and have to direct traffic and secure accident scenes until sheriffs or police arrive. They handle drunk drivers if necessary and respond to livestock animal abuse reports.

Today, the department is funded in part by federal grants and reimbursements, with 2 percent of its budget coming from the Nevada general fund. The plant and animal programs, including brand inspection, get most of their funding from inspection fees.

THAT AUGUST, COW COPS Justin Ely, 30, and Blaine Northrop, 63, met with a deputy at the sheriff's office in Elko. The three officers, who planned to spend the day searching for clues at the Maggie Creek and Heguy ranches, north of I-80, conferred on what they knew: Most of the shootings had happened in remote areas that might take an hour to drive to on one of the long dirt roads that divide the properties. They also thought about what they didn't know: Who did it, when and why. When the officers left on horseback, it was a dry morning looking to be a hot day.

They traversed the Adobe Range, skirted Swales Mountain and passed by hardrock mine shafts, 100 years forgotten. They rode over juniper- and sage-strewn slopes that were once Shoshone territory, and now cattle country, used by ranchers, ATV riders and zinc miners. Illegal marijuana grows had been busted nearby, so they wondered if maybe someone had sprayed cattle to keep the animals off their ill-gotten turf. But the lawmen found no evidence of pot grows. They recovered a few bullets from a .22 caliber firearm, which seemed odd. "Most people don't shoot with .22s," Elko County Sheriff Jim Pitts told me later. Maybe the culprits were squirrel or bird hunters, they speculated. Northrop, Ely and the deputy returned that afternoon with little to report. Whoever was doing the damage wasn't leaving much of a trace.

Some people wondered if the motive was political — environmentalists wanting to make a statement about the negative ecological impacts of grazing, perhaps. In 1989, an anonymous member of Earth First! told the *Los Angeles Times* that he had cut fence and shot holes in water tanks on Nevada ranches. In the 1990s, environmental activists allegedly shot up to 30 cows in Northern California. But these people seemed to be shooting to wound, not to kill. "If they re-

ally wanted to hurt us, they'd go after the solar panels at our wells," Griggs told me. "I hate to even say that out loud." During the 2014 shooting spree, Maggie Creek lost tens of thousands of dollars in cattle, which can fetch up to $2,800 per head in good market years.

At the end of September 2014, the Nevada Cattlemen's Association, state Department of Agriculture and Nevada Farm Bureau posted an $11,500 reward, most it from the affected ranchers, for the arrest and conviction of "the person or persons who have maliciously shot livestock in the Susie Creek area." Community members supported the investigation on social media, updating regularly, and hunters called the department almost daily to offer their help.

FLINT WRIGHT, 36, is 5-foot-10 and has dark spiky hair with hints of gray. He wears jeans and boots to work and has a personable, straightforward demeanor. Wright worked in ranching full time and then became a cattle broker before he took the position with the state in 2013. He's now the head of the state's Animal Disease Laboratory, Wildlife Services and the Livestock Identification Program, and is in charge of policing livestock laws across Nevada. He oversees 76 part-time brand inspectors and five full-time officers. This fall, Wright gained his newest officer, stationed near Las Vegas, to police livestock and plant crimes — mostly invasive contraband like yellow starthistle or medusahead, which shows up in nurseries and in landscaping.

Wright's other four full-time officers mostly deal with livestock, and each patrols a district of over 10 million acres. "Most of them are very aware of who is running cattle or sheep, who works for those particular people," Wright says. "They're looking for something out of place." Blaine Northrop patrols the northern district and Justin Ely the center, while Chris Miller handles the northwest and Sterling Wines looks after east-central and south Nevada.

"There's a lot of country to cover," Ely told me recently, when I visited the state agriculture office in Elko. Ely, based out of a sheriff's office in Winnemucca, is 6-foot-3, wears a dark mustache, jeans, boots and a .45-caliber pistol on his hip. He spends most days patrolling the highways and remote dirt roads that criss-cross his district. "You see right here," he continued, placing his index finger on a 5-foot-tall map of Nevada, mounted on the wall. "That county alone is larger than New Hampshire."

Nevada cow cops have the authority to stop any vehicle hauling livestock, to check its papers and make sure brand inspections and health certificates are up to date. During spring and fall, when a high number of animals are shipped and sold, Ely might pull over eight trucks in a day. Usually, one of them has to be turned back or investigated further. "It's the frontlines of protection for food safety," Wright says. The department has to trace every animal that leaves or enters the state within 24 hours. Tracking has improved in recent years, and a new USDA animal traceability law went into effect in 2013, strengthening requirements for shipping animals across state lines in order to better trace outbreaks of disease. The law also helps cow cops regulate illegal sales, or "trading on the truck" — when a seller finds a better price for his or her livestock somewhere else and illegally changes its destination. "The

Chris Miller on patrol in Nevada's northwest district, left, and stopping a vehicle hauling livestock, to check papers and make sure health certificates are up to date.

Joe Heguy, Mitch and Rhonda Heguy's son, keeps an eye on the cattle after they've been vaccinated at his family's Nevada ranch.

"Shit, you might as well start at the top of the list of all of our members — guarantee they've all had one killed or maimed."

—Dave Stix Jr., president of the Nevada Cattlemen's Association

temptation is just there," Wright says. "People are willing to risk that felony."

IN LATE SEPTEMBER 2014, Northrop was at his office in Elko when he got a call from a cattle producer in western Utah. Ranches were seeing an outbreak of pigeon fever, the rancher warned, so keep an eye out for it. "Great," Northrop thought. Cattle had recently been mysteriously shot in numbers higher than anyone in Nevada could remember, and now this. Pigeon fever, more common in horses, can be carried by flies and sometimes creates pus-filled infections with open sores that resemble scabbed-over bullet wounds.

It was around that time that Justin Ely, the Winnemucca-based officer, received reports of nearly 80 more shot-up cows in the area. He drove out to a ranch to inspect them. A veterinarian swabbed the open sores and sent the samples to a lab for testing. It was pigeon fever. Word spread fast, then confusion and paranoia. Mitch Heguy wondered about the incidents on his own property: "Are we imagining this? Could it all just be pigeon fever?" But a veterinarian said no, Heguy's cows had bullet wounds, same as Griggs' cows and Sam Mori's, 30 miles north. For the shooting investigation, the pigeon fever was a red herring.

By October, the reward for information on the cow shootings had climbed to $20,600. Ranchers claimed higher numbers of victims, but the state confirmed that at least five head had been killed and 21 wounded, many left with intestines hanging out of their bellies. Ranchers discussed the issue at the fall Nevada cattlemen's convention. The Heguys found out that others — producers in Eureka County and near Battle Mountain and yet another north of Wells — had experienced shootings, too. Whoever was apprehended would likely be charged with animal cruelty and destruction of property and, if convicted, receive up to a year in jail and a $25,000 fine. But any leads that Wright's team had were going cold.

AS A LIVESTOCK CRIMES INVESTIGATOR, you come to know communities of people well, and their landscapes even better. You learn to read your physical environment in ways other people don't. You can spot a vehicle carrying livestock from a mile away, and you notice dust spiraling up from a dirt road in the distance, spend a minute wondering who it might be, and then probably stop them to find out. You notice tourists in camper vans parked on BLM land and sportsmen heading out for a hunt, and you file that away in your mind. It's your job to be aware of these things, just in case.

Yet even knowing every person who works on every patch of land in your district won't stop cattle rustling from happening under your nose. It is one of the major crimes cow cops look out for. The thieves usually have some kind of personal relationship with the victim;

ranch hands are often prime suspects.

In one such case in 2011, Northrop got an out-of-the-blue call from a brand inspector in the tiny community of Deeth in Elko County. The inspector had a bill of sale for six calves, but something about it seemed off. It turned out that two cowboys were getting ready to steal the calves from the rancher they worked for and had forged the bill of sale. One of them confessed, pleaded guilty to felony cattle theft, was fined and got two years' probation.

That was a simple case of rustling; cow cops deal with similar cases that cross state lines. Interstate communication is essential to catching crooks. Every Western state has livestock criminal investigators. When an animal goes missing, an email will be fired off to brand inspectors in neighboring districts and states, as well as to sale barns. In the old days, law enforcement, and thieves, were more low-tech. One notorious rustler in northern Nevada in the 1920s stole cattle while wearing shoes he'd created with hooves strapped to the bottom, so his footprints looked like those of cows and could not be traced back to him.

There's been a reported increase in rustling in recent years in Nevada and beyond. In Oklahoma, meth addicts have apparently stolen cattle to support their habits. In Nevada, ranchers say the increase might be a response to the environmental and economic impacts of drought and bad market years. Cow cops have apprehended four rustlers in the past two years and investigated 15 cases in the last three.

Meanwhile, the challenges around multiple use in open spaces grow as the human population increases. Half a century ago, one recreationist a month crossed Heguy's property; now, during bird season, that number is closer to 20. Ranches near Elko once felt remote, but today, as the desert town sprawls south along the highway, conflicts are bound to arise. In a crowded West, in other words, a cow cop's job won't get any easier.

IN THE SPRING OF 2015, a few more shootings were reported, but they seemed unrelated to one another. A cow was shot at close range near a BLM wild horse management area in Elko County, raising suspicions of a horse activist on the rampage. Near Crescent Valley, a cow was found shot and quartered, its backstrap neatly missing.

All these shootings were a reminder of the vulnerability of northern Nevada's ranches. They are some of the largest in the nation, requiring so much space for forage that there's no way to strictly monitor where the cows go, what they do and whom they encounter. "Off the top of my head, it's happened at least once to all of our friends," Dave Stix Jr., president of the Nevada Cattlemen's Association, said of the shootings. "Shit, you might as well start at the top of the list of all of our members — guarantee they've all had one killed or maimed."

With their proximity to Elko, Jon Griggs and Mitch Heguy's ranches are particularly vulnerable to mischief. Heguy became increasingly paranoid about who was driving by his property — found himself writing down license plate numbers of vehicles he didn't recognize. "We leave the access (to BLM land) through our private land open," he said. "We don't lock it up, but we could." Most visitors coming and going are relatively harmless. Griggs once found a group of dirt bikers tearing up a remote area of his rangeland. When he asked if they knew where they were, the bikers said, "Oh, we thought we were just out in the hills."

But the shootings were different, something menacing. By the summer of 2015, the reward was up to $28,700. Wright and his team had only been able to verify that about 25 of the dead animals had been shot; infection can make it difficult to determine the cause of death, and the spray of a shotgun can make an infected bullet wound hard to differentiate from something like pigeon fever. Wright had told the press his team identified "persons of interest" in the case, but they led nowhere. The case was cold.

ONE MORNING THIS PAST AUGUST, Wright, Northrop and Ely stood in a pasture at the foot of the Ruby Range, examining a dead horse. It had wandered into a fenced area without access to water and couldn't find its way out. After two days, it died of thirst. The horse was lying on its side, the brown hide stretched tight around its bloated body, its legs straight and stiff in the air. There was no evidence of foul play, but the death is now part of an ongoing investigation that the officers can't comment on.

If Wright's officers spend most of their time dealing with cattle, horses are the runner-up. In August, his team helped investigate the deaths of a dozen horses, along with some snipped fences and vandalized water tanks at a wild horse rescue center.

There were 34,500 wild horses and burros in Nevada as of last March — nearly three times what the BLM deems viable for this landscape. Northrop once got a call about a particularly bad case of "horse hoarding." A couple had collected dozens of feral horses, presumably to save them from BLM auctions or starvation on the range. Yet when the cow cops arrived, they saw grossly emaciated horses, as well as goats that were so hungry they were eating the hay out of sheep's wool, even the wool itself. The state Department of Agriculture had to shut down the couple's "rescue" operation.

As in many places in the West, in Nevada, mustangs are a source of vitriol. Many ranchers are increasingly desperate to have them removed from the delicate range of the Great Basin, while animal rights activists are adamant that mustangs should not be sacrificed for cattle. Wright says that, as a cow cop, the only death threats he's received came from folks "in the Cliven Bundy crowd" — and wild horse activists.

A cow Mitch Heguy believes was shot in 2014, top. The cow was put down some weeks after this photo was taken, never having recovered from the wound. Above, Rhonda Heguy prepares to vaccinate a cow.

This horse's death on the side of a dirt road was preventable. Better fencing might have helped, but at least it didn't seem intentional. Not like one of Heguy's cows, which had suffered from an apparent bullet wound and would later be put down. The cow cops couldn't shake their frustration, anger, and resignation with such shootings — a crime they'd been unable to solve and that seemed likely to reoccur until they did. Northrop and Wright peered down at the horse lying in the sagebrush on the other side of the barbed wire fence. Flies buzzed chaotically around it.

"Smells like Mom's home cooking," Ely joked. It smelled like rotten eggs. After a few minutes, the cow cops moved on. It was almost noon, and there was a lot more country to cover. □

Associate Editor Tay Wiles writes from Oakland, California.
@taywiles

This story was funded with reader donations to the High Country News Research Fund.

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University of Wyoming – Natural Resource Recreation and Tourism – Degree Coordinator and Lecturer – This proposed degree program will emphasize entrepreneurial and business management skills, human dimensions of natural resources, environmental science, and outdoor skills. To learn more or apply, visit www.uwyo.edu/hr/ (Job ID 8594). Review of applications begins May 30, 2017.

Conservation Director for Grand Canyon Trust – For a full job description and how to apply, please visit our website at www.grandcanyontrust.org/conservation-director.

General Manager – The Colorado River District, based in Glenwood Springs, Colo., is seeking candidates for the General Manager position. For further information and instructions on how to apply, please visit the website at www.ColoradoRiverDistrict.org. Applications should be submitted by May 31, 2017.

Whatcom Land Trust Stewardship Director – Position is responsible for implementing Whatcom Land Trust's stewardship program. officemanager@whatcomlandtrust.org. www.whatcomlandtrust.org.

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Volunteer and Monitoring Coordinator Conservation nonprofit in southeast Utah seeks full-time Volunteer and Monitoring Coordinator to organize service projects and cultural site monitoring. www.friendsofcedarmesa.org.

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American prairie *continued from page 9*

get that out of an app, I know. But to see it while the rain is pelting your face and bison are walking by — you get that epiphany when you're standing there."

Visitors to the reserve can observe sage grouse, prairie dogs, pronghorn, and all the grama grass and sagebrush they can handle, but the main attraction is the bison. Before white settlers showed up, more than 30 million bison roamed the continent. Demand for buffalo robes and the leather belts used in steam engines sent droves of hunters west, and they were mercilessly effective. By 1890, the free-ranging bison population was estimated at 85.

The slaughter wasn't purely for profit; it also was meant to deprive Plains tribes of their most important resource. As author Richard Manning writes in *Rewilding the West*, a history of the prairie where today's reserve is located, "Colonel Richard Irving Dodge said, 'Kill every buffalo you can; every buffalo dead is an Indian gone.' "

The prospect of wild bison returning has drawn support on the Fort Belknap Reservation northwest of APR. "It is good to see a group of people that has this grand vision that includes an animal that Indian Country holds so dear," says Mark Azure, president of the Fort Belknap Tribal Council. Azure sees the preserve as an important reversal of tribes' history. "We'd love to see all the fences gone, all of the structures disappear," Azure says frankly. "We'd love to see all the Europeans go back, but we know that's just not possible. Whatever we can get back, whatever piece of that relationship that we can get back, we'll take it."

Gerrity early on sought to establish a healthy relationship with the tribes. "We don't come in to tell them what to do," he says. "We just say we're going to be your neighbor."

American Prairie Reserve invites the tribes to every bison release, and Fort Belknap's leaders allow the guests of its 200-mile tours to camp on sacred grounds in the reservation. APR and Fort Belknap are also considering swapping bulls to diversify their herds' genetics, and Gerrity says the two parties have discussed allowing APR's bison to roam on sections of the reservation.

It's an awkward fact that APR must buy out its ranching neighbors to fulfill its vision. Longtime ranchers view the reserve as outsiders encroaching on a sustainable industry. "We do it, we do it right, and we feed a lot of people while we're doing it. Why would you want to displace that?" says rancher Vicki Olson.

The relationship is complicated by the fact that many of APR's staunchest opponents helped restore the prairie, making the project possible. After inheriting overgrazed properties, generations of local ranchers have managed their land to bring back native grasses and allow wildlife — with the exception of bison and apex predators — to return. Less than 10 percent of APR's targeted land has been tilled.

But few ranchers remain today — more proof, APR says, that its project is achievable. A 2013 story in *Bloomberg Pursuits* quoted Gerrity calling the region an "empty aquarium" in which to work. Phillips County has shrunk from 9,000 residents in 1920 to just over 4,000 today, but it's rarely good PR to equate 4,000 people to, well, nothing. "Agriculture is the economic engine of this community, something most residents understand," rancher Perri Jacobs wrote in a letter to Gerrity published in the *Phillips County News*. "But since you are not a resident of Phillips County, it would make sense that you don't understand."

And some ranchers worry that APR's approach to conservation could damage the ecosystem. "They just want to let (the bison) run, no management, no culling, no nothing," Olson says. "Free-roaming bison with no management ... is going to destroy it." However, conservation biologists say 3.2 million acres could support bison herds large enough to prevent inbreeding, while supporting predator populations and preventing overgrazing.

Gerrity says he expects ranches to remain in the area, just as private inholdings survive in Grand Teton and Glacier national parks. American Prairie Reserve has implemented measures to help those who stick around remain financially viable. Wild Sky Beef, an APR-owned company that sells grass-fed beef and jerky, funnels profits to neighbors who implement wildlife-friendly ranching practices. APR also offers grazing leases to ranchers who, among other requirements, publicly support the reserve and its goals. (Jacobs, the letter writer, had her lease renewal denied this year.)

Opponents are working to ensure that properties remain under local control. Several families recently teamed up to buy parcels that went up for sale, and some aging ranchers are lining up buyers before listing their properties. But north-central Montana remains a market with willing sellers, and APR has millions to spend and the patience to implement its decades-long vision. "We've done 25 property deals," Gerrity says. "Every single deal was because the seller had a new dream they wanted to fund," be it a feedlot in Nebraska or a condo in Tucson.

The underlying tension around APR is rooted in history. Ranchers who have cultivated the Montana plains for more than a century fear their lifestyle is in jeopardy, while local tribes regard a century as a short timeframe in which to lay claim to a landscape. "If a non-Indian rancher or farmer is fearful of their way of life being taken, they need to go back in their history books or come and talk to tribes, because that's exactly what happened to us," Azure says.

Meanwhile, APR continues to buy land. With each bison, the prairie looks more and more like it did before the ranches existed.

When the gates to the bison pen finally opened in 2014, anyone expecting a stampede would've been disappointed; the thundering herd was content to simply mosey around the confines of the pen. The audience waited quietly, as did about 200 bison gathered on a hillside a couple hundred yards away. After a while, tribal members began singing gently, and the yearlings bolted for the hills, joining the resident herd on a prairie that — after 130 years — was once again home to bison. □

People camp on the American Prairie Reserve where Chief Joseph and the Nez Perce crossed the Missouri River on their nearly 1,200-mile attempt to evade the advancing U.S. Army in 1877. COURTESY AMERICAN PRAIRIE RESERVE/ GIB MYERS

A river trip ends in tragedy

OPINION BY ANDREW GULLIFORD

As spring returns to the Rockies, I think about a day last summer when we packed for a rafting trip, never thinking to pack for death. We took clothes, cameras, river gear, sleeping bags and tents. We never dreamed there might be a tragedy, a whitewater death by drowning. And yet that accident happened, and our lives were forever changed the instant the raft flipped.

It took hours for a helicopter to come by, low and slow, searching for the kind of shadow that reveals where a body might be hidden underwater, pinned by boulders.

Four other rafts were well ahead of us when our raft slammed into a submerged tree and the commercial river guide yelled, "High side! High side!" That meant we had to move fast to the upside of our raft to prevent water from getting into the low side and flipping us. But in a tight canyon with the river roaring at 9,000 cubic feet per second, everything happened simultaneously. The raft tossed all six of us into 45 degree water. I blew out the back end and swam to a log near an island. I looked around for my companions. I saw no one.

It was the first day and the first rapid on a four-day rafting trip. In those seconds after the accident, as I tried to understand what had happened, I heard only the rushing water. Then I saw the upside-down raft bobbing furiously in the river, caught in the kind of submerged tree that river-runners call a strainer.

I stayed on the log, debating whether to try to get to the island, when our guide appeared out of the thick willows. He saw me and patted his head. I patted mine in turn to signal that I was OK. We couldn't hear each other over the sound of the river. He turned around and melted back into the brush, and I stayed a few more minutes on the log, my impromptu sanctuary.

In 20 years of river running, I've experienced plenty of flips, but this one felt different. I reached the island, removed my lifejacket and helmet and tried to dry off as the sun climbed the cliff. Then one of the couples who had been in the front of our raft appeared, both of them barefoot because the river had ripped their sandals off. We hugged.

We explored the island. On both channels the river roared by too swiftly for us to make a safe exit. Then we saw two guides signaling to each other across the river about how many of us had been rescued. And that is when we knew: One of us was lost.

A capsized raft floats through whitewater. GUNTER MARX/ALAMY STOCK PHOTO

River running, both in private boats and commercially, has become firmly established in the Rocky Mountain West. Families want a taste of adventure, cold water splashed on hot skin, yells and shouts of excitement, a reason to hang on to the "chicken line" as the rafts tumble through rapids. We crave excitement.

Our group had planned this trip months in advance without knowing that a record snowpack would force the dam above us to release huge amounts of cold water, not only to save the dam but also for downstream irrigation. These pulse floods are healthy for the environment, re-establishing habitat for endangered fish and bird species. But with high flows, there is little margin for human error. Now, as the bright sunshine ebbed towards late afternoon shade, we survivors were grateful simply to be alive.

The next hours blend together. I recall deep wails and sobs of grief from the man whose partner was missing. He kept saying, "Why her, God? Why not me? Take me, I'm older." The inevitable questions arose about the random nature of death, who dies and why.

Weeks later, I thought about the hidden complexities of the situation. Here we were, trapped in a canyon, and yet also caught between some of the West's other competing activities, things like farming and irrigation, activities far removed from river running. The Bureau of Reclamation, I had learned, would not slow a scheduled release from one of their big dams — not even to retrieve a body.

There were 28 passengers on the trip, and among them were grandparents who'd brought their grandchildren. I hoped those children did not blame the river. We had chosen to be in the wilderness, and that choice had irrevocable consequences.

Snow is melting now in the backcountry. Rivers will rise in June from snowmelt, and rafters will launch with a sense of nervous expectation. To every river runner and every excited passenger: I wish you safe passage. □

Andrew Gulliford is a professor of history and environmental studies at Fort Lewis College.

Writers on the Range is a syndicated service of High Country News, providing three opinion columns each week to more than 200 media outlets around the West. For more information, contact Betsy Marston, betsym@hcn.org, 970-527-4898.

WEB EXTRA
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A biography of Old Man Coyote

The biological and cultural evolution of America's most polarizing canid species

Coyote America
Dan Flores
271 pages, hardcover: $27.50.
Basic Books, 2016.

First things first: Coyote. When you read the word, how many syllables do you hear? Your answer, according to Dan Flores, author of *Coyote America*, may be "immediately diagnostic of a whole range of belief systems and values." The *ki-YOH-tee* versus *ki-yote* divide is one of the best indicators of a person's coyote politics, a nearly hard-and-fast way that we subconsciously identify ourselves: as defenders of the species, in the case of the former, or as a manager, shooter and/or trapper, in the latter.

In *Coyote America*, Flores occasionally assumes the mantle of coyote's head of public relations, demonstrating how the species, once "dead last in public appeal — behind rattlesnakes, skunks, vultures, rats, and cockroaches," overcame its stigma as "varmint" to become a darling among the very people who most infrequently encounter it — modern-day urbanites. More often, though, Flores is content to serve as a guide to the species, relaying the coyote's complicated natural, cultural, political and mythological histories. It is why Flores describes his book as, "in most respects, a coyote biography."

Tales about Old Man Coyote have proliferated in Native America, most likely since the days of the ancestral Clovis people, ensuring the canid's status as perhaps the continent's most charismatic species. Flores examines the animist religions of "Coyotism" that arose during the Neolithic Revolution, a time marked by the domestication of plants and animals, including the coyote. Ultimately, however, the coyote's revered status among humans is probably due to one very unique ecological coincidence: We are the only two mammalian species to have distributed ourselves so completely across the North American continent, making us "Darwinian mirrors" of each other. And because coyotes are truly "American originals" — they evolved not in the Old World, but here on this continent — they also remind us, as Flores says, "that we are new and barely real here."

This fact hasn't stopped humans from attempting to eradicate coyotes. In the chapters "A War on Wild Things" and "The Archpredator of Our Time," Flores delves into how coyotes came to be first regarded as a "parasite on civilization." It was rare for Western settlers to agree wholeheartedly on anything, and yet they soon arrived at a common consensus — that coyote and wolves were a scourge that endangered range life. This resulted in the establishment of bounties (at the time, a generous $1 per scalp) across most plains and desert states. It didn't take long for Congress to adopt an even more radical eradication program in 1931 that targeted both predators along with "other animals injurious to agriculture and animal husbandry."

Flores calls this "species cleansing," a term he deliberately links to fascist rhetoric and episodes of genocide. And yet the campaign to clobber the coyote faced significant opposition. Flores suggests that the discourse between federal policymakers and scientists began to resemble a "predator-prey dialectic" itself, a parallel to what was happening between hunters and coyotes. This is around the time the famed environmentalist Aldo Leopold "had come to realize that a predator-free 'paradise' contained a fatal non sequitur."

National parks and "scientist saviors" fought to preserve the species. But that's not the whole story. Ultimately, coyotes took matters into their own paws. As it turns out, *Canis latrans* is nearly indestructible. With the help of computer simulations, biologists discovered a rare adaptive breeding mechanism that helps ensure the species' survival, despite the odds: In the wake of population control measures, female coyotes tend to birth even larger litters with more surviving pups.

Flores' overview of environmental legal protection is more than a timeline; it's a drama of its own, full of political villainy along with the occasional victory lap. Flores is eager to recognize the coyote's cultural champions, from Walt Disney to Edward Abbey, whose tone in his writing about the coyote sometimes verges on the gloating, a trademark "thumb in the eye of Western ranching."

Still, though, with 500,000 coyotes killed every year — about one per minute — the "varmint" stigma clearly persists. A photograph on page 185 taken by Kevin Bixby depicts at least 15 coyote corpses in the New Mexican desert following a coyote-hunting contest. It's no wonder coyotes have taken to our cities. From New York City to Denver to Los Angeles — and nearly every other major metropolis in the United States — the spike in urban coyote populations indicates yet another phase of the canid's unique adaptability.

Of course, seeing a coyote in the city also presents humans with an opportunity to adapt. "To confront a predator," Flores writes, "is to stand before the dual-faced god from our deep past," to be reminded of "bright teeth." Americans who want to be "re-wilded" and re-connected to nature (a distinct craving posited by evolutionary biologist Marc Bekoff) now need look no further than the packs that are forming — and even thriving — in our own city centers.

A coyote in Joshua Tree National Park, California. NPS/MICHAEL VAMSTAD

BY LAWRENCE LENHART

THE BIG ONE

BY JAMES THOMPSON

Whenever I felt an earthquake, I'd look at the clock. That way, when the quake was announced on the evening news, I could say, "Hey, I felt that one!" Only if the tremors persisted and intensified would I wonder, *Is this the Big One? Should I find a desk to crawl under?*

In the 20 years that I lived in Anchorage, Alaska, it never was, and I never did.

On March 27, 1964, the second-strongest earthquake ever recorded anywhere in the world struck south-central Alaska, devastating much of Anchorage. During my childhood, in the 1980s, there were few physical reminders of the cataclysm, and the temblors I experienced were too feeble to tip over a vase. But Anchoragites will remind you of the Big One every chance they get — because the 1964 quake was just one Big One. The longer the span of time that has elapsed since the last Big One, the bigger the next Big One is sure to be. Just picture Mother Nature silently cocking her rubber-band gun, stretching it farther … and farther … and farther. …

The next Big One, locals say, is guaranteed to make the 1964 quake feel like a coin-operated vibrating bed in a budget motel.

Meanwhile, the sense of anticipation has become vital to the local economy because … well, to be honest, Anchorage has little to offer the curious wayfarer but the promise of its own imminent obliteration.

An improbably large city in a state synonymous with wilderness, Anchorage is nevertheless a remarkably unremarkable place. Famously dissed by writer John McPhee as just another excruciatingly mundane American metropolis, Anchorage can boast neither prestigious universities, nor sports teams of consequence, nor the birthplace of any scientific or cultural luminaries. It is even denied the honor of being the state capital. Alaska is a tourist destination, but Anchorage isn't. Thousands of vacationers pass through the city each summer, but that's all they're doing — passing through. The Big One is as close as Anchorage gets to having an iconic tourist draw like San Antonio's Alamo or Philadelphia's Liberty Bell.

So Anchorage makes the most of its Sword of Damocles. Every tourist shop is a shrine to the Big One, a temple where tectonic plate subduction meets shameless commerce. The obligatory mugs, T-shirts and ulu knives vie for attention with seismically themed novelty items — vibrating pens, vibrating paperweights, the infamous "Earthquake-in-a-Can." You name it, it vibrates. Downtown Anchorage is always buzzing like a giant bachelorette party.

The 1964 earthquake in Anchorage, Alaska, ravaged stores and collapsed roadways. Today the region is perpetually expecting the next Big One. BILL RAY/THE LIFE PICTURE COLLECTION/GETTY IMAGES

But even as they cash in on their ineluctable doom, Alaskans know that it's imperative that they never give the impression of complaining about it. They have a reputation to maintain, after all. Alaskans are supposed to be impervious to cold, loneliness, sunless winters that drag on for 11 months of the year and the incessant menace of anthropophagous critters that make *Jurassic Park* look like a petting zoo. So you find a quarter-million people staring down impending oblivion with unflinching resignation. Anchorage is the fatalist capital of the universe.

Once, as my father and I walked down Fifth Avenue's shadowy canyon of modernist skyscrapers, Dad pointed to the sheets of glass and cement siding stretching into the sky above our heads and remarked that if the Big One struck right now, it would all come crashing down on us. He used the same tone in which he'd ask me where I wanted to go for lunch.

The window in my mother's office in her firm's glass-sided high-rise faced the office building across the street. It was not an inspiring view, but she said she was lucky. Puzzled, I asked why. She led me outside, where we walked around to the back of the building, or as close as we could get to it. At our feet, a precipice plunged to the churning breakers of Cook Inlet, where seagulls wheeled distant as comets. Above us, the shiny tower rose from its vertiginous perch like a futuristic lighthouse. Mom remarked matter-of-factly that, though her co-workers on this side enjoyed stunning views of Knik Arm and Mount Susitna, when the Big One finally hit, she'd outlive them — by a few seconds, anyhow.

Now I live in southern Idaho, a place better known for starchy tubers than natural disasters. When people find out that I grew up in Alaska, they often ask if I miss it. Sure, sometimes it would be nice to call my boss and tell him I'm going to be late for work because a moose is napping on my front doorstep. But, hey, at least here in my sagebrush paradise, I don't have to deal with the perpetual prospect of the earth splitting open and sucking me down into its gravelly bowels.

Instead, I can just sit back, relax and wait for the eruption of the Yellowstone Caldera. □

James Thompson teaches online English and Humanities courses for Stratford University. He lives in southern Idaho.

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HEARD AROUND THE WEST | BY BETSY MARSTON

UTAH

Badgers are known for their digging prowess, but now we know just how maniacally they'll work for later dining opportunities. In an ingenious experiment, University of Utah researcher Evan Buechley staked down seven cow carcasses in the Great Basin Desert, then filmed whoever showed up to feast. When one carcass completely vanished, with no signs of dragging, Buechley was mystified. Then he looked at what the camera revealed: A single badger had entombed the cow in situ, burying the animal and completely covering it with dirt, NPR reports. Buechley said he was "more and more amazed at this kind of impossible feat that this badger had achieved." The badger excavated day and night, digging underneath the carcass while building a den connected to it — sort of an underground dining nook. "So it worked overtime for five days, like really, really intensely, and then it just had a two-week feeding fest," Buechley said.

MONTANA

Apparently, most Montanans weren't bothered by TV commercials showing two political candidates shooting at inanimate objects, but *Missoula Independent* writer Dan Brooks confessed his dismay. The two men were vying for the state's at-large House seat vacated by newly appointed Interior Secretary Ryan Zinke. In an ad called "Grab," Republican Greg Gianforte fires a shotgun to blow up a computer perched on a desk in a grassy field, while an ominous voice-over explains that it represents the apparently outrageous notion of a national gun registry. Meanwhile, in "Defend," Democrat Rob Quist's weapon of choice is a rifle. After first pointing the weapon directly at the camera — a move some viewers perhaps found disquieting — Quist blasts away at a television, thereby demonstrating his distaste for a National Rifle Association TV ad that targeted his candidacy. Both candidates wear jeans and humongous belt buckles, so that, Brooks says, "they look like what they are: two guys who dressed up to shoot televisions for television." The candidates are betting that "voters will sit up and bark for guns, phony swagger and whatever other rootin', tootin' marketin' a team of political consultants … can think up." But Brooks hasn't lost hope: "There has to be a meaningful idea around here somewhere." The special election was set for May 25.

COLORADO **So, whose stretch was the cleanest?**
DOUG RHINEHART

ARIZONA

If you're going to chisel an inscription onto a marble headstone created to stand the test of time, it is assuredly a good idea to spell the name of the deceased correctly. And should you fail the spelling test? Just dispose of the evidence, as somebody did about 65 years ago, tossing 50 rejected headstones into a sandy incline called Pantano Wash near Tucson, Arizona. As the decades passed, the "typo-ridden grave markers" were joined by even more debris, including 10 tons of tires, 240 tons of concrete and 80 tons of scrap metal, including entire car bodies, reports the *Arizona Daily Star*. "There's so much junk it boggles the mind," said Eddie Garcia, an inspector with the engineering company that's reinforcing stream banks along the wash and adding trails. The project is estimated to cost $8.2 million; no word if points were taken off for spelling.

WYOMING

In a delightful *Wyofile* story by Matthew Copeland titled "How to patch a wind turbine," we're told that the primary responsibility is "Don't die. That's job one." Job two is "kind of like fixing a tooth cavity," says Jason Litton, a Cody-based rope-access technician, explaining that turbine blades can get pitted or cracked by lightning strikes, falling ice or wind-borne objects. Those holes need to be filled in with fiberglass and ground smooth, much like dentistry. But there's no comfortable office for the fixer, who has to dangle in space hanging from a rope while being buffeted by Wyoming's famous gusts. The pay starts at $25 an hour, with a healthy travel allowance, but the risks include being hit by lightning or shocked by a high-voltage cable. Not to mention that "an unlocked turbine blade could lift you 400 feet higher into the sky, turn you upside down and drop you." No nitrous oxide available either, though that's probably not a good idea anyway if you're working 300 feet above the desert floor.

MONTANA

There's mud, and then there's Montana mud, so suction-savvy it can swallow a Humvee's 37-inch tires and hold the vehicle tight for a week. That's what happened near Billings after a Humvee slid into a mud bog on a rural road. The crew, on patrol to Minuteman III missile sites, had to abandon the vehicle and call for help. But the mud embraced the Humvee with such enthusiasm that it defeated three attempts at extrication. Eventually, a helicopter from the Montana National Guard had to wrap it in a sling to airlift it from its death grip, reports the *Billings Gazette*.

WEB EXTRA For more from Heard around the West, see **hcn.org**.

Tips and photos of Western oddities are appreciated and often shared in this column. Write betsym@hcn.org or tag photos #heardaroundthewest on Instagram.

"I can find no credible evidence that good stewardship of our public land impairs the economies of Western rural communities. But such **economic fantasies obstruct realistic action** to advance prosperity."

Luther Propst, in his essay, "We can fight against Utah's war on public lands," from Writers on the Range, hcn.org/wotr