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High Country News

For people who care about the West

Water to Dust

Oregon's obscure terminal lakes feed millions of migrating birds,
but now these waters need life support of their own

By Hillary Rosner

June 13, 2016 | \$5 | Vol. 48 No. 10 | www.hcn.org





The salt-crusted shore of Oregon's Lake Abert. ELI REICHMAN

On the cover

American avocets at Lake Abert, a salty “terminal” lake in southern Oregon that has no outlet except through evaporation. ELI REICHMAN



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Editor's note

A drying lake, and a conundrum

On the first truly warm morning this spring, I awoke to the songs of birds. From high in the cottonwood came the clear melodic whistles of a northern oriole, fresh in from the southland. Soon this migratory bird and its partner would find a suitable branch from which to hang their nest, intricately weaving it from grasses and horsehair from a nearby paddock. I could also hear the eerie *wubwubwubwub* of a snipe's wings as it circled the cattails in the lower pasture, where last year it raised its brood.



I exult in the avian paradise our western Colorado valley becomes in spring, with its orioles and snipes, hummingbirds and kinglets, warblers and dozens of other species. Occasionally, I pause to consider how such concentrated feathered wealth survives in this high-desert ecosystem. The truth is that many of the birds would not be here — or at least not in such abundance — were it not for the verdant habitat we humans have created. Without the irrigation waters we draw from the creeks and rivers, no cottonwoods would grow on the hillsides or spruce trees in the towns. The only wetlands would be narrow bands of green along the original waterways.

What birdsong would fill the air if our waters receded? That's the increasingly urgent question bird-lovers, biologists, ranchers and water managers face in arid southern Oregon. As Hillary Rosner reports in this issue's cover story, Lake Abert, one of a handful of natural salty bodies of water in the Great Basin, is a key feeding ground for hundreds of thousands of migratory birds. Last year, it effectively dried up for the first time since the 1930s. Only a handful of phalaropes and avocets appeared, because there was scarcely any food.

The cause of the lake's recession is far from clear. Is it driven primarily by climate change, or by the diversion of the river waters that feed the lake? There is no definitive answer, Rosner notes, because no one has monitored the waters flowing into the lake or into the ditches that water local ranches and farms. Further complicating the problem is the fact that those very diversions have created new habitat for a different complement of bird species. Ducks, cranes and ibises now rely on these human-created wetlands, and they would be harmed if water were diverted from the fields to replenish the 36,500-acre basin.

The Abert conundrum is one that will become increasingly common in our region as prolonged drought diminishes snowpack and water supplies. Westerners will have to work together to balance a variety of values; we will have to think carefully about how we choose — and take care of — our habitat. The birds, meanwhile, will adapt the best they can. At least they've had millennia to practice.

—Paul Larmer,
executive director/publisher



Irrigated crops in Colorado’s San Luis Valley, where a program that pays farmers to fallow fields has helped restore the aquifer. JOHN WARK

San Luis Valley aquifer slowly refills

For generations, an abundant aquifer in south-central Colorado’s San Luis Valley provided enough water to sustain the arid farming community. But beginning in 2002, a multi-year drought shrank nearby streams and the water table. Some wells stopped working. In 2006, water users developed a program that pays farmers to fallow their fields, funded by new taxes on groundwater. Today, water users in Subdistrict 1 have pumped one-third less water, about 200,000 acre-feet last year, down from more than 320,000 before the project. Area farmers have fallowed 10,000 acres that once hosted thirsty alfalfa or potato crops — and the aquifer has recovered nearly 250,000 acre-feet of water. PAIGE BLANKENBUEHLER

MORE: hcne.ws/sanluis-aquifer

Watch for more from the “Small towns, big change” project through the Solutions Journalism Network at hcne.ws/changing-west.

Trending
New Mexico sues over orange river

On May 23, New Mexico sued the U.S. Environmental Protection Agency and the owners of the Sunnyside Mine near Silverton, Colorado, over damages caused by last year’s Gold King Mine blowout, which turned the Animas River orange. It’s likely the start of a long legal fracas over the spill and an impending Superfund listing for the Gold King and surrounding mines. The complaint alleges that the blowout “wrought environmental and economic damage” and deposited sediment that could be stirred up again. Water sampling and fish counts conducted since the spill have shown that the river’s condition didn’t change significantly. BY JONATHAN THOMPSON

You say

JENNI HART: “If the mine wasn’t leaking, the EPA wouldn’t have been there. So how can they be at fault?”
MIKE ZOBBE: “None of this would seem a bit off if all these states hadn’t embraced lightly regulated mining. All this is a inevitable result of the mining legacy all the states fell over themselves to promote.”

LOKI WEDNESSON: “Nobody will gain from this, except the lawyers.”

ANN SNYDER: “All involved parties need to be held responsible and pay.”

MORE: hcne.ws/NMsuesEPA and [Facebook.com/highcountrynews](https://www.facebook.com/highcountrynews)

Quoted

“When Americans go to the grocery store and hardware store, they assume products they buy have been tested and are safe; they aren’t.”

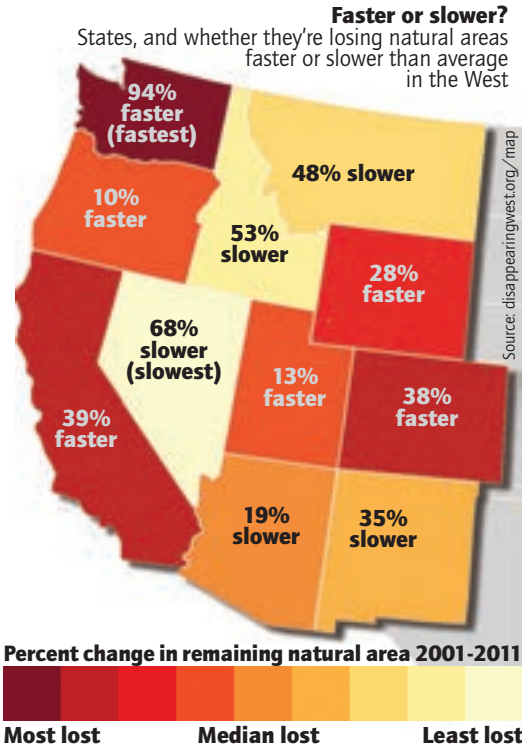
—Sen. Tom Udall, D-N.M., following passage of a bill that will overhaul the 1976 Toxic Substances Control Act, giving the Environmental Protection Agency broad new authority to regulate chemicals in millions of products Americans use every day. “For the first time in 40 years, we will have a working chemical safety law,” he said. How the EPA implements the new law and how much funding the agency gets to do the work will have a huge impact on whether it can live up to its sponsors’ high hopes.

ELIZABETH SHOGREN
MORE: hcne.ws/tcsa-revamp

Losing nature

A new mapping effort quantifies the rapid decline of natural landscapes across the West and identifies the type of development involved. The report — conducted by researchers at the nonprofit Conservation Science Partners and funded by the Center for American Progress, a liberal think tank — is the most recent in a series from progressive groups defending the value of public land, as some conservative politicians argue for increased local control and potential transfer of federal lands to states. The maps show roads, energy development, urban sprawl, and agriculture and forestry leaving ever-smaller splotches of open land. Among the takeaways are the speedier development happening on state and private lands, compared with federal lands, and a sense of how different types of development are impacting local communities. Interior Secretary Sally Jewell promoted the new research in a speech in April, calling for a “course correction in how we approach conservation.” The study’s backers hope it will be used to influence land-use planning decisions and to inform citizens.

ELIZABETH SHOGREN
MORE: hcne.ws/losing-nature



1 Number of horse catheters science teacher Tori Hellmann uses to show high school students in Colorado the basics of fracking. (The demo also requires a pop bottle and Jell-O.)
BRYCE GRAY
MORE: hcne.ws/fossilfuel-ed

Photos

The American town left behind

In 1846, the Oregon Treaty demarcated the border between Canada and the United States — and isolated Point Roberts, a sliver of the U.S. on the Canadian side of the border. Roughly 1,000 Americans live there year-round, traipsing across the border for school, doctor’s visits and trips to the DMV. But it’s also a bit of an idyll, surrounded by beaches and woods. DAVID RYDER
MORE: hcne.ws/cutoff-US



Women watch orcas at Point Roberts, a sliver of the U.S. abandoned on the Canadian side of the border.
DAVID RYDER

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HUMAN COSTS ARE TOO MUCH OF THE EQUATION

On the back of the May 16 issue, you quote Wendy Beye's recent Writers on the Range opinion piece about how the coal industry's decline is challenging the Western communities that rely on it: "Too often, the human costs of doing what's right for our Earth are not considered as part of the equation."

To use the word "our" and not "the" is an easy slip to make, yet is so telling of "our" view of an otherwise vastly diverse planet. I would argue that it is the human costs to all living things on and within Earth that are not fully considered in the "equation" of human self-interest. The irony is not lost on me after reading in this same issue the feature story "Grizzly Face-Off," about the plight of the Yellowstone grizzlies. More apropos would have been to title it "Human Face-Off," what with all the humans considering the "costs" of whether the bears deserve to share space with us, space that humans have consumed and marginalized. As author Gloria Dickie pointed out with sad irony, the term "game" is used, not wildlife, to warn drivers on the roads of Wyoming to steer clear of animals — in order that those animals may be shot dead at a later date by hunters. Wildlife as monetary gain; "game" as value, not valued.

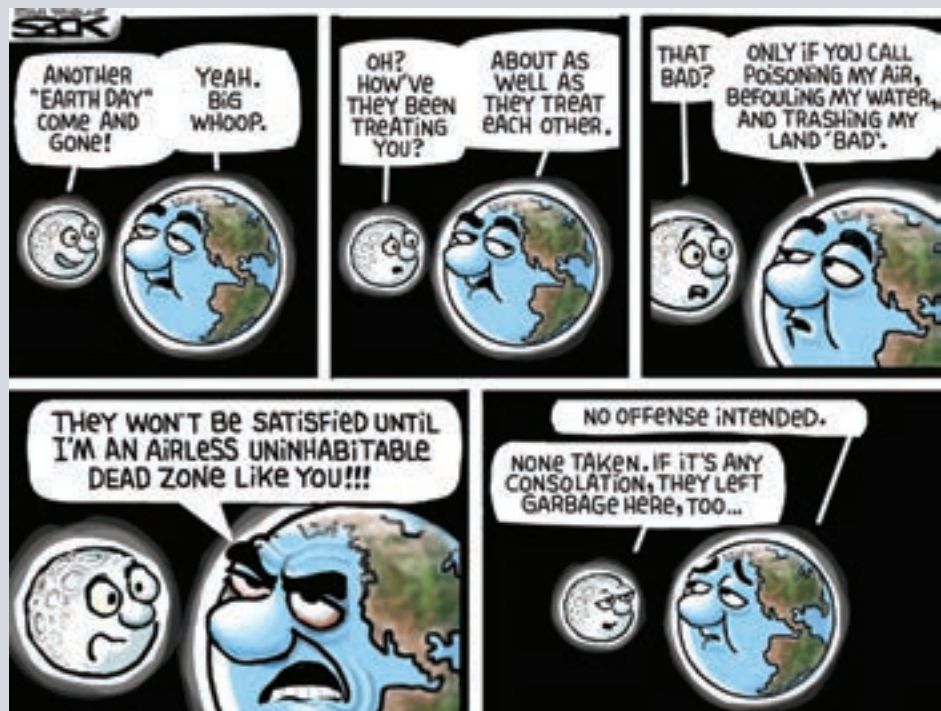
Ms. Beye, I couldn't agree less.

*Sean S. Doyle
Corvallis, Oregon*

INDIFFERENCE TO THE SYSTEM

The failure of Utah and Pennsylvania to provide state funding for criminal defendants who require the services of public defenders raises serious questions ("Justice denied," *HCN*, 5/16/16).

The U.S. Constitution requires due process but does not require the kind of defense that the wealthy are able to engage, compared to the inadequacies of legal representation provided by public defenders. Both states are guilty of depraved indifference to the plight of people such as Sue M. and other defendants similarly situated. And this raises another question about the inadequacy of a defense. There are many cases where appeals have been mounted on the basis of this issue. Judges and prosecutors are public employees and licensed attorneys trained to practice law and with the requisite level of knowledge and experience to recognize what constitutes an ineffective defense as it plays out right before their eyes. And if they fail to recognize and acknowledge



STEVE SACK/CAGLE CARTOONS.COM

this reality, are they not also guilty of depraved indifference to the process of a fair trial?

Moreover, why are allegations of ineffective legal counsel not brought to the attention of licensing boards, seeking sanctions or revocations of professional licenses? We may not expect much self-policing to occur in the context of practitioners who fail to deliver competent and effective legal services on behalf of the likes of Sue M. Cronyism will continue to nurture depraved indifference for the law and our justice systems that judges, prosecutors and defense attorneys have sworn to be faithful to.

*Hugh S. Jameson
El Paso, Texas*

SUPERFUND WON'T SAVE SILVERTON

If one looks at the broader story of hardrock mine impacts — worldwide and through history — the story is always the same ("The Gold King Reckoning," *HCN*, 5/2/16). The public subsidizes the impacts, despite all the talk about "free markets."

Unfortunately, if one is expecting a solution now that Silverton has "allowed" the Environmental Protection Agency to take an active role, I wouldn't hold my breath. Both the metal-mining industry and the Environmental Protection Agency are in deep economic trouble, the former due to low metals prices and the latter because it has been

financially and politically gelded for decades. Industry (in general) made sure that the funds to continue Superfund activities largely "disappeared" starting in the late '80s.

*Robert E. Moran, Ph.D.
Golden, Colorado*

HIGH COUNTRY BLUES?

Once again our subscription has come up for renewal and, as usual, it's a difficult decision — not because of the writing, the photography or the wonderful back page. It's because the news is so depressing, as it is where we live.

We pass our copy of *High Country News* on to various friends and neighbors, who enjoy it equally. But when it comes to the latest issue, it's a little bit like going to the dentist — what's the bad news going to be this time?

We haven't had mining here for a long time, and we have little water but there is a real effort to develop because of population pressure from the south, especially.

This is all to say that we can definitely relate to all the problems that you cover, but we would love a little more coverage of positive things that may be happening to keep us going. I imagine that others might feel the same way.

*Lynn Rathbun
Cambria, California*

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High Country News is a nonprofit 501(c)(3) independent media organization that covers the issues that define the American West. Its mission is to inform and inspire people to act on behalf of the region's diverse natural and human communities.

(ISSN/0191/5657) is published bi-weekly, 22 times a year, by High Country News, 119 Grand Ave., Paonia, CO 81428. Periodicals, postage paid at Paonia, CO, and other post offices.
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Arizona makes tough choices on water

The state's recent actions fend off threats to water supplies

BY TONY DAVIS

In 1980, Arizona Gov. Bruce Babbitt helped a water revolution blossom amid the state's unnaturally verdant lawns by signing the Groundwater Management Act, which mandated that communities pump no more water from aquifers than they put back in. Today, the state's 6.8 million residents collectively consume less water than their 2.8 million predecessors did in 1980.

Now, the tough-minded sense of shared sacrifice that helped push that law through has returned, under conservative Republican Gov. Doug Ducey, who recently vetoed legislation that would have rolled back some of the groundwater restrictions. Meanwhile, his staff has negotiated a possible three-state agreement to protect the Colorado River from a disastrous shortage.

"It's a good sign that the governor decided he was going to speak on water," says Kathleen Ferris, a longtime water-politics player who, until recently, ran the Arizona Municipal Water Users Association. "We haven't had a governor engaged like that on water since Babbitt."

Arizona's recent *sturm und drang* over water has two immediate causes. One is the \$3.5 billion Central Arizona Project, or CAP, which brings Colorado River water into the state's parched midsection. Supplying about 40 percent of Arizona's water supply, it's helped the state meet the 1980 act's requirements by reducing its dependence on groundwater. The other is the planned 7,000-home Tribute development in Sierra Vista in the state's southeast corner. Backers see it as a boon to a lagging economy, but critics say it would strangle the already-imperiled San Pedro River.

This May, Lake Mead, where CAP water is stored, fell to its lowest level in history — 1,074.09 feet and sinking, compared to 1,220 feet in 1999. Yet critics have said the state has dragged its feet, even as scientists' warnings about water shortages have grown more urgent. In the past year, particularly, Arizona's leaders were criticized for being too complacent.

That complacency is now evaporating like water from a desert pothole. In late April, Arizona Department of Water Resources Director Tom Buschatzke told

reporters that state officials had negotiated a historic Colorado River agreement with California and Nevada — committing Arizona to deep cutbacks in Central Arizona Project deliveries, just to keep Mead alive.

Under the proposed agreement, which all three states must approve, farms, cities and tribes using CAP water would see small cuts possibly as soon as next year, and cuts of up to 40 percent later.

Then, in May, Gov. Ducey, the man who appointed Buschatzke, vetoed two bills that would have weakened the 1980 groundwater law, which requires urban-area developers to prove they have a 100-year water supply before building new homes. While the law has a loophole for far-flung suburban development, it encouraged cities in the Phoenix and Tucson areas to use renewable CAP supplies and treated sewage effluent rather than pumping groundwater.

The vetoed bills would have weakened a recent expansion of the 100-year rule that allows rural county governments to extend the requirement to cities within their boundaries. One bill would have allowed cities to opt out, while the other would have sunsetted the counties' rules after five years, forcing county governments to readopt them.

The Tribute project, which triggered the two bills, lies in Cochise County, one of two counties to opt into the groundwater rules. Developers had obtained a

100-year supply certification, but a state Superior Court judge overturned it after opponents, including the Bureau of Land Management, charged that the massive project's groundwater pumping would dry up the San Pedro, damaging federal water rights.

The bills' backers, who said they wanted to allow Sierra Vista to control its own growth without federal "interference," argued that the legislation's failure could drastically crimp future growth. David Godlewski, president of the Southern Arizona Homebuilders Association, says construction in Sierra Vista has already nearly stopped, thanks to an economic slump.

But there is no immediate concern about a statewide water crisis if the proposed Colorado River agreement goes through. The state and cities have recharged nearly three years' worth of CAP water into the ground over the past 15 years, so officials say they're prepared for cuts in the short term. Without those cuts, a water crisis looms, officials say: Mead could drop to 995 feet by 2023, triggering a 75 percent cut in CAP deliveries.

The willingness to make hard choices has allowed the state to manage its water without a serious crisis since Babbitt's day, according to Buschatzke. It's also led to a two-tier system of water management, which is strong in and around cities, but much weaker in the hinterlands. In consequence, the water table has risen or stabilized in many urban areas, while it has fallen in the countryside. The Colorado River agreement and Ducey's vetoes will preserve this tiered system, at least until 2026, when the proposed agreement runs out and would have to be renegotiated.

"We're not going to allow bills that get in the way of the 1980 Groundwater Management Act," says Ducey, "or take away from the work of the people that have come before in protecting Arizona's water." □

"We haven't had a governor engaged like that on water since Babbitt."

— Kathleen Ferris, former head of the Arizona Municipal Water Users Association

The San Pedro Riparian National Conservation Area, outside Sierra Vista, Arizona, the town where 7,000 new homes are planned.

BUREAU OF LAND MANAGEMENT



Tony Davis writes for the *Arizona Daily Star* in Tucson. [@tonydavis987](#)

AUM (animal unit month) is the amount of forage needed in a month to sustain:



1 cow and calf



or 1 horse



or 5 goats



or 5 sheep

How it started: Ranching took off in the 1860s and was mostly unregulated for decades, causing tremendous damage to rangeland ecosystems. The 1934 Taylor Grazing Act ended the era of the open range, and in the 1950s, federal agencies began issuing grazing permits based on available forage, rather than historical use.

How it works: Federal grazing permits generally last 10 years, but the actual number of authorized AUMs can change annually, based partly on conversations between each rancher and respective federal land manager. The agreed-on number is usually lower than what's allowed under the permit. The Washington, D.C., offices of the Forest Service and BLM provide policy oversight, but local practices vary.

WEB EXTRA Explore more grazing data at hcne.ws/fed-land-grazing

Snapshot

Federal-lands ranching: A half-century of decline

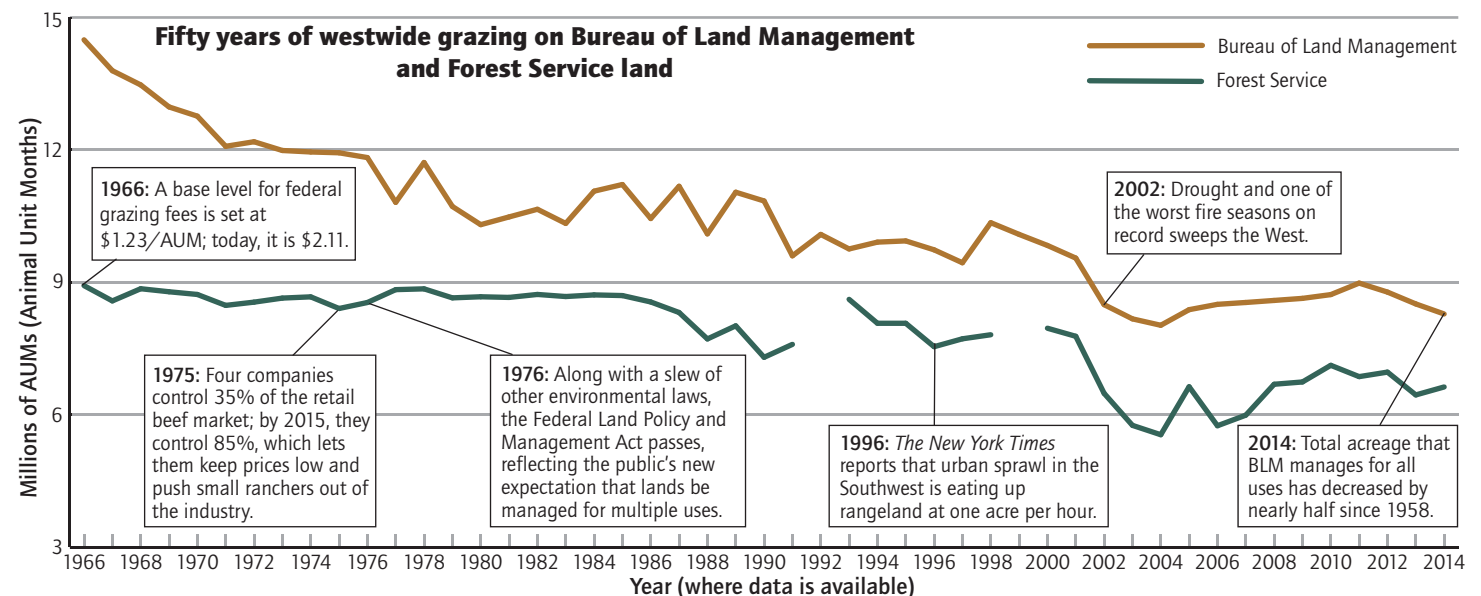
One of the prime drivers of the 45-year-old Sagebrush Rebellion, the movement to take control of public lands from the federal government, is the sense that rural Western ranchers are bullied by forces beyond their control. That narrative remains compelling, in part because it's true. Since the 1950s, the ranching industry has been battered by market consolidation, rising operational costs, drought and climate change. Meanwhile, the amount of grazing allowed on federal lands has dramatically fallen. Bureau of Land Management livestock authorizations dropped from over 18 million animal unit months (*see sidebar*) in 1953 to about 8 million in 2014.

Political rhetoric often blames the decline entirely on environmental regulation. But while the 1970s legislative changes have had an impact, there's a more complex set of forces at work. The market for materials like lamb and wool fell after World War II, for example. Urban development became a factor as the feds sold off land to private buyers. Feedlots proliferated, squeezing smaller ranchers out of the market, and grazing fees rose. Then the advent of range science — which aims to use a coherent scientific method to determine how much grazing the land can sustain — changed everything.

Since then, drought has forced ranchers to sell off animals that their allotments can no longer support. What was then the costliest drought in the nation's history hit Montana, Idaho and Wyoming particularly hard in the late 1980s, causing \$39 billion in damages altogether. The 2002 dry spell, which sparked what was, at the time, one of the biggest fire seasons in Western history, pushed more cattle off the land. The current dry spell has also reduced livestock numbers, particularly in California and Nevada. The effects of drought can linger for years, as ranchers labor to restock, and replacement livestock from other regions struggle, sometimes unsuccessfully, to adapt to a new landscape. And once grazing levels are down, federal agencies historically have "made a habit of not letting them go back up," says Leisl Carr-Childers, an American West and environmental historian.

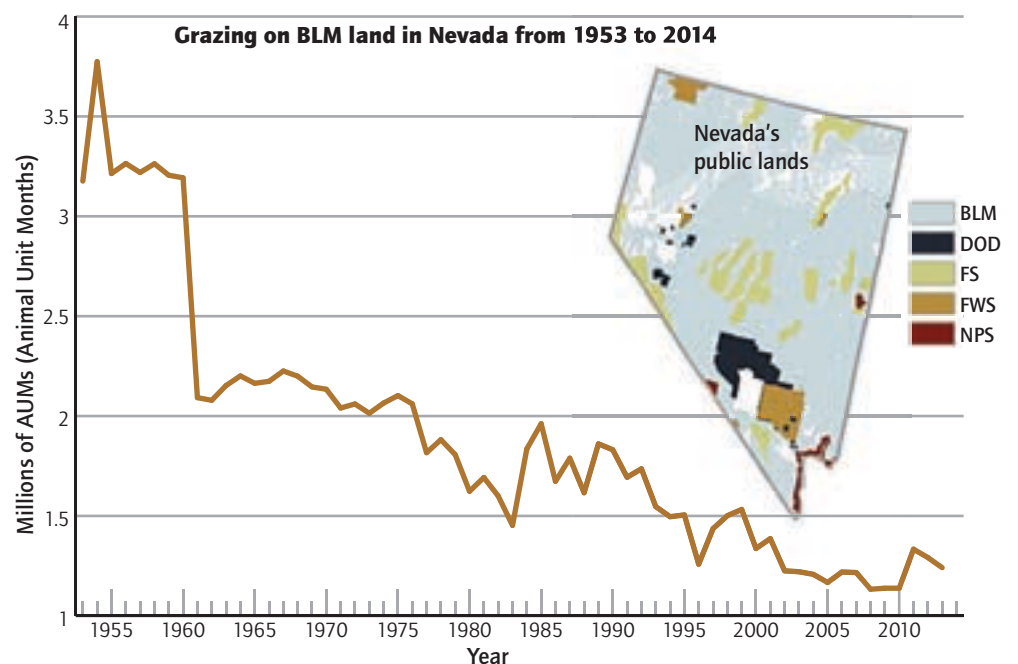
Read on for a look at 50 years of grazing data, from U.S. Forest Service and BLM reports. **TAY WILES**

This reporting was done with support from Stanford University's Bill Lane Center for the American West. Read more at hcne.ws/sagebrush-rebel.



Grazing in Nevada

Ranchers who depend on federal lands are a small fraction of the national livestock industry, and yet they continue to play a central role in political discourse in the West. Nevada is deeply enmeshed in Sagebrush Rebellion politics, and its rocky grazing history may have encouraged that. Nevada sheep ranchers were hit particularly hard by the post-World War II decline in wool demand. Polyester, the "magic" fabric that needed no ironing, arrived in 1951 and further cut demand. The Las Vegas-area boom increased in the 1950s and encouraged more private homeowners to purchase BLM land. The Department of Defense has also withdrawn grazing lands for weapons testing. Environmental regulations accelerated the livestock decline on federal lands in Clark County, in particular. When the desert tortoise was listed as threatened in 1990, The Nature Conservancy and The Conservation Fund, working with the county, bought out 16 BLM grazing permits from local ranchers over a decade. That left just one stockman with a significant herd of cattle in the area: Cliven Bundy. In 2014, Shawna Cox, his secretary and fellow sagebrush rebel, published a book about him: *Last Rancher Standing*.



SOURCE: BLM AND USFS EARLY STOCKING RATES WERE DIFFICULT TO MEASURE ACCURATELY. FOR MORE ON OUR METHODOLOGY, AND ADDITIONAL DATA AND ANALYSIS, VISIT HCN.ORG. ICONS: CHRIS PYPER, ROAD SIGNS, EALANCHELIYAN S., BROOKE WARREN. MAP: NATIONAL ATLAS



Smoke and flames from wildfires erupt behind a car on the highway near Fort McMurray, Alberta, Canada in May. MARK BLINCH/REUTERS

El Niño adds fuel to Southwestern fires

In California, Arizona and New Mexico, an underperforming weather pattern increases wildfire risk

PAIGE BLANKENBUEHLER

On May 1, a devastating blaze erupted near Fort McMurray in eastern Alberta, Canada. By late May, it had engulfed more than 1.2 million acres of boreal forest — nearly double the size of Rhode Island. At the height of the fire, which was still burning at press time, more than 80,000 people were evacuated and almost 4,000 employees of Alberta's tar-sands oil region were unable to work.

The Alberta blaze may well portend a tough fire season in parts of the West. The wildfire season is changing. Blazes are much hotter and larger than they used to be, and seasons are beginning earlier and lasting longer. The characteristics of the Fort McMurray Fire fit the trend of

the mega-fires likely to hit the West as the climate warms, says Yong Liu, researcher and head of the Atmospheric Science Team of the U.S. Forest Service.

This winter's Super El Niño has complicated the outlook. While the Pacific Ocean's warming waters were expected to bring big storms to the southern half of the West, climatologists say the results disappointed much of the area. That left New Mexico, Arizona, central California and much of Nevada and Utah parched, exacerbating drought conditions, according to the National Interagency Fire Center (NIFC), in Boise, Idaho.

In states bypassed by the strong El Niño, the groundwork has been laid for an intense fire season, says Wally Covington, climatologist and fire expert from Northern Arizona University. Meager snow-

pack, dry soils and warmer temperatures will make it easier for blazes to spark and spread. According to NIFC's May outlook, California's near-normal snowpack (the best since 2011) has depleted rapidly, and the wildfire season is expected to be worse than usual this year, thanks to high fuel loads. Statewide, the ongoing drought has left huge stocks of desiccated timber, while in the state's southern region, just enough El Niño precipitation fell to encourage prolific grass growth.

That's "both a blessing and a curse," says Daniel Berlant, spokesman for Cal Fire. The El Niño-encouraged fuel loading has forced his agency to prepare for an earlier fire season, but "the extra rain earlier in the year has also allowed us to do prescribed burns earlier."

Elsewhere in the West, NIFC projections show an earlier-than-normal peak for wildfire danger in New Mexico and Arizona, in May and June. But come July and August, above-average temperatures and rapidly drying fuels will bring a higher fire risk to California, Nevada and southern Idaho. The Rocky Mountain region — Colorado, Wyoming and Montana — is in relatively good shape because of deep snowpack and increased precipitation from late April through May. The Pacific Northwest should also dodge an early fire season, despite a diminished snowpack, thanks to May's wet and cool weather.

"Super El Niños" like this one, followed by longer periods of warm La Niña conditions, are just one symptom of the larger climate shifts that many climatologists expect the arid West to see. El Niño is now transitioning to La Niña as the Pacific cools. Typically, those patterns balance each other out. But since this year's El Niño bypassed areas expected to receive more precipitation, La Niña — which usually brings less precipitation to the region — is likely to cause the dry Southwest to become even drier.

"Once La Niña is firmly in place, we would expect to see more fires in the southern half of the Western U.S. through the fall," Covington says. "The Southwest is not in a good position." □



A plutonium button at the Rocky Flats nuclear weapons plant.

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THE LATEST

Backstory

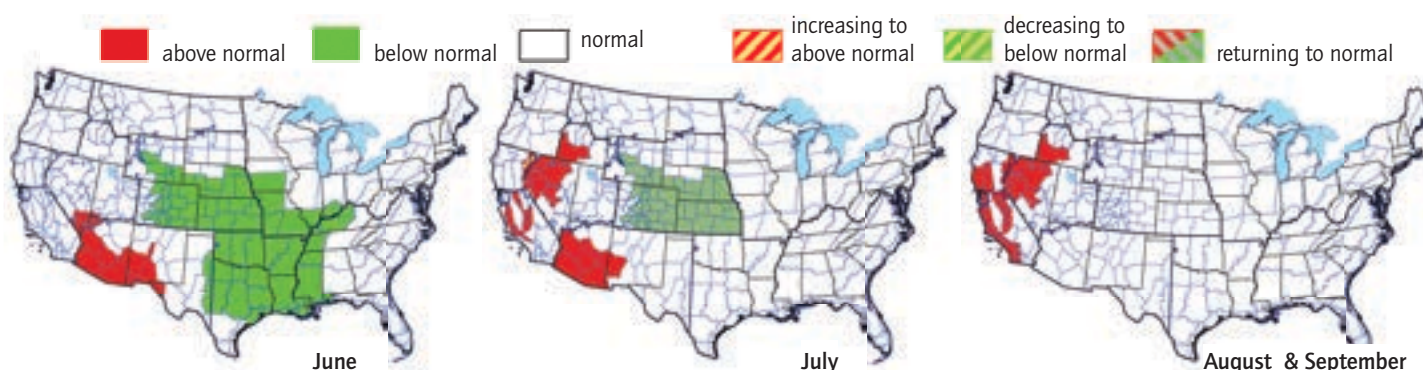
From 1952 to 1989, Rocky Flats — a 6,500-acre site just northwest of Denver — was home to a nuclear weapons plant that produced thousands of plutonium triggers for the nation's nuclear arsenal. After toxic waste leaks, catastrophic fires and years of protests, **Rocky Flats was raided by both the FBI and the Environmental Protection Agency, and was shuttered by 1992. By 2006, the government had spent \$7.5 billion to clean it up. Today, 5,000 acres are a wildlife refuge,** but the central 1,300 acres remain a Superfund site, polluted by buried chemicals and toxins ("The Half-life of Memory," *HCN*, 2/17/09).

Followup

In late May, **over 15,000 residents who owned homes downwind of Rocky Flats in 1989 reached a \$375 million settlement with plant operators over plutonium contamination,** ending a 26-year legal battle over violations by Rockwell International Corp. and Dow Chemical Co. A federal judge is expected to approve the settlement, after which a claims process will be established.

LYNDSEY GILPIN

2016: Significant wildland fire potential outlook



SOURCE: PREDICTIVE SERVICES/NATIONAL INTERAGENCY FIRE CENTER

Homes on the Utah portion of the Navajo Nation south of Montezuma Creek sit amid the pumpjacks of the Aneth Field. Some revenue from oil development here goes to San Juan County, but residents still struggle to get county services.

JONATHAN THOMPSON



Disenfranchised in Utah

*How a county silenced Native American voters for decades
— and how Navajos are fighting back*

BY KRISTA LANGLOIS

San Juan County then and now

"As a conservative Republican, (Bruce Black) says he does not believe that Indians, who are wards of the government, should control county finances. ... 'If all our offices were taken over by Navajos, the state would have to take over within a year because the budget would be out of control.'"

—High Country News, July 30, 1990

"I don't have a problem with redistricting, but the Navajo (Human Rights Commission) is using the federal law, even Judge Shelby, to get two Navajo commissioners."

—San Juan County Commissioner Phil Lyman, Four Corners Free Press, April 15, 2016

To understand why Wilfred Jones wanted an ambulance, you have to understand where he lives. San Juan County, in southeastern Utah, is nearly as big as New Jersey but is home to fewer than 15,000 people. The lower third is part of the Navajo Nation and is almost entirely Ute and Navajo. The upper two-thirds are white and predominantly Mormon.

Jones, a 61-year-old grandfather with jet-black hair and a diamond stud in each ear, lives in the lower third, five miles south of the blink-and-you-miss-it town of Montezuma Creek. It's rough, rocky country, where bullet holes riddle the road signs and lonely pumpjacks ply oil from the earth. The nearest services are in Blanding, some 40 miles north.

Sixteen years ago, when Jones joined the board of the Utah Navajo Health System, he realized his neighbors were dying because the closest ambulances — the county's, in Blanding, and the tribe's, in Kayenta, Arizona — were an hour away "on a good day." So Jones asked the county commission if one of San Juan's ambulances could be housed in a garage in Montezuma Creek. From there, it would take half the time to rush an elder suffer-

ing a heart attack to medical care.

But the county wasn't interested. Over the next decade, Jones says, he and other health advocates repeatedly tried to get the commission to improve ambulance service on the reservation. But while the sole Navajo commissioner was supportive, the two white commissioners were usually not. (Former Navajo Commissioner Mark Maryboy and others corroborate Jones' account, though no official votes appear in county records.)

Eventually, Jones gave up: The Utah Navajo Health System trained its own EMS volunteers, built a garage and bought ambulances with tribal and federal funds. It stung, but wasn't surprising. Though Native Americans on the reservation don't pay property taxes, they indirectly contribute millions of dollars in oil revenue and federal funds to the county each year, which is supposed to be returned in services like education and health care. But many Navajo requests — from building schools to implementing bicultural education to improving roads — have been denied by Anglo residents, who have always held a majority in elected offices despite comprising less than half of the county's population.

Now, Native Americans could gain control of county government for the first time. Earlier this year, U.S. District Court

Judge Robert J. Shelby ruled that San Juan County violated both the 1965 Voting Rights Act and the U.S. Constitution by relying on race to draw the boundaries of its voting districts. By engaging in "racial gerrymandering," San Juan County systematically diluted the strength of the Native vote, keeping Natives out of power and skewing the makeup of the county commission and the school board. The system, perpetuated for decades, "offends basic democratic principles," Shelby wrote.

In 1957, Utah became one of the last states in the nation to grant Native Americans the right to vote, doing so only after being forced by a federal judge. Still, it took another three decades for the first Native Americans to be elected in San Juan County. It wasn't for lack of trying — county clerks kept Native candidates off the ballot, refused to register Native voters, and held written elections in English, disenfranchising those who were illiterate or didn't speak the language.

In the mid-1980s, the U.S. Department of Justice sued San Juan County for violating the Voting Rights Act, which protects minority voters by banning discriminatory voting practices. The county admitted fault, and agreed to implement bilingual voting and create three voting districts, one for each county commissioner seat. San Juan County was subsequently divided into three chunks. Districts 1 and 2 were in Anglo territory. District 3, on Navajo land, became known as the Indian District. In 1986, it elected Mark Maryboy as the county's first-ever Navajo commissioner.

But though no one noticed at the time, the way the county drew its lines still violated the Voting Rights Act, because it

packed minority voters into a single district while spreading the white vote over multiple districts. That meant Native voters could only elect one representative of their choice while white voters got two, even as the Native population surpassed the white population, 52 to 46 percent.

Sure enough, Navajos remained in the minority on every governing board. Maryboy was frequently outvoted. So were Navajos on the school board; three out of five of its voting districts are also on Anglo-dominated land.

Current County Commissioner Bruce Adams, who was elected in 2004, says allegations he and other elected officials ignored Native Americans' needs are "100 percent false." Yet as recently as 1995, the county denied that it was responsible for educating Navajo children; it built a high school in the town of Navajo Mountain only after yet another judge ordered it to do so. A U.S. Department of Justice official who later reviewed disparities in course offerings between the county's white and Native schools said in 1997 that he "hadn't seen anything so bad since the '60s in the South." Court-ordered injunctions to provide Navajo language and cultural education were abandoned. And as of 2011, Indian students, who comprised 48 percent of the county's student population, received 80 percent of all disciplinary actions. Donna Deyhle, a professor of educational anthropology at the University of Utah, says that together these injustices lead to lower test scores, higher dropout rates and fewer college degrees, which in turn results in lower civic participation.

The inequality doesn't stop at the classroom. Requests to bring running water or electricity to the Navajo community of Westwater were denied in 2007, because, one county commissioner argued, residents were too poor to pay for utilities anyway. Tribal members have never been appointed to judicial offices, and aren't represented on cultural or historical boards. And many residents still erroneously believe that because Native Americans don't pay property taxes, the county isn't obligated to provide for them. According to court documents, Bruce Adams supporters boasted in a 2012 campaign ad that he "has been very successful in preventing the expenditure of San Juan County tax money on reservation projects for which the county has no responsibility."

Like most Navajos and Utes living in San Juan County, Wilfred Jones was unaware of the degree to which this was happening. He'd experienced racism in his own life — from police officers who threw his father's sacred medicine pouch onto the highway, and from white kids who taunted his son and his grandson with racial slurs when they faced off at sporting events — but he wouldn't have called it "institutionalized." "We thought it was



Mark Maryboy was elected in 1986 as the first Native American on the San Juan County Commission, after San Juan County admitted it had violated the Voting Rights Act.

JON KOVASH

normal procedure," Jones says, of voting in the county. "We went with the flow."

Until, that is, Jones met Leonard Gorman. Gorman, who's also Navajo, with a trim goatee and rectangular glasses, is executive director of the Navajo Nation Human Rights Commission. In 2011, Gorman began visiting oft-ignored corners of Navajo Nation to learn about residents' concerns. The stories he heard from Jones and others near Montezuma Creek seemed at first like another example of the disparities faced by Native Americans everywhere. But the more Gorman learned, the more he realized that this wasn't just a lingering effect of generations of discrimination — it was discrimination in action.

"The struggles, the racism we all read about in history books ... I'd like to believe that the overtiness of what happened then

isn't happening today," he says. "But in some places, it is."

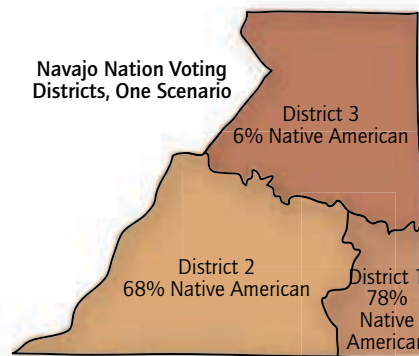
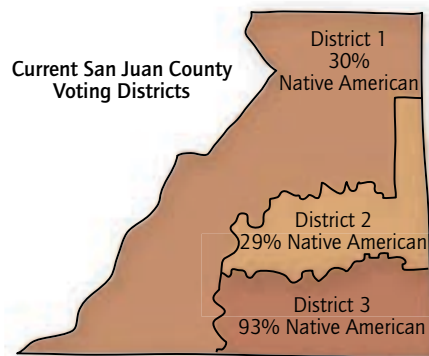
The most far-reaching example is also the least visible — which is perhaps why it escaped notice for so long. Under both the Voting Rights Act and Utah state law, counties must redraw voting districts at least every 10 years to ensure that the population is spread evenly across districts. But San Juan County hadn't redrawn its voting districts since 1986. Gorman offered multiple times to help the county redraw its boundaries so that Tribal voters were more evenly distributed over two districts, rather than packed into one, but was turned away. County officials said they believed the Indian District wasn't just legal — it was required.

When he heard this, Jones was outraged. If there had been two Navajos on the county commission, his pleas to get an ambulance might have been answered, and people could have suffered less. "That was what finally gave me backbone," he says. So in 2012, Gorman sued twice — once to redraw the county commission districts and once for the school board's. Jones was a plaintiff in both suits.

In December 2015 and February 2016, Judge Shelby ruled unequivocally in the Navajos' favor. He ordered the county to remap both its school board and county commission voting districts. Commissioner Adams says the county is complying.

And while there's no guarantee that having the Native American population spread over two voting districts will lead to two Navajo commissioners, it's likely that, given a fair opportunity, a Navajo majority will elect Navajo candidates. If that happens, Native Americans could control the financial, law enforcement, education and transportation needs of one of the nation's largest counties for the first time.

But given the county's history, many Navajo remain skeptical that the new maps will adhere to the law. "We still have a long way to go," says former Commissioner Maryboy. "But those recent court decisions look very positive for us. I think it's inevitable that county officials are going to have to accept the fact that we're part of the government." □



Current San Juan County, Utah, voting districts, left, and what new districts might look like, based on a previous proposal from the Navajo Nation. (Borders are approximate.)

SOURCES: SAN JUAN COUNTY AND SALT LAKE TRIBUNE



Bison blood samples for brucellosis tests.

MICHELLE MCCARRON

THE LATEST

Backstory

Since Wyoming first established its feedgrounds in 1912, thousands of elk have munched taxpayer-funded rations every winter. Conservationists have long warned that the crowding could spread brucellosis, which causes miscarriages. However, **since state and federal agencies have long assumed that bison, not elk, transmit the disease to livestock, they've focused their attention on the bison**, restricting their winter migration out of Yellowstone National Park and culling hundreds each year ("The killing fields," *HCN*, 2/6/06).

Followup

In May, research by the U.S. Geological Survey and its partners found that elk — not bison — are the most likely source of brucellosis outbreaks in cattle around the Greater Yellowstone Ecosystem. DNA analysis revealed that strains found in feedground elk were much more widespread than the strain found in bison. "We found no direct links (of transmission) from bison to livestock," Pauline Kamath, USGS ecologist and lead author, told the *Billings Gazette*. The findings could eventually transform national game management policies.

PAIGE

BLANKENBUEHLER

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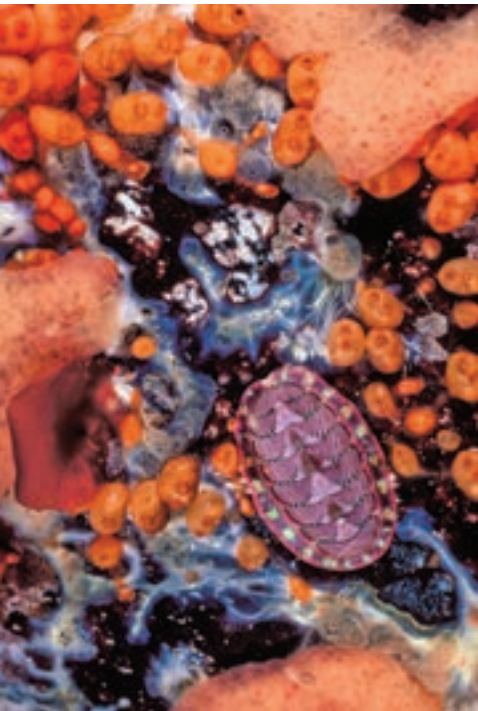
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Lined chiton with social tunicates, orange zoanthids and a red Irish lord with plumose anemones in the waters of the Pacific Northwest. DAVID HALL

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BENEATH COLD SEAS: THE UNDERWATER WILDERNESS OF THE PACIFIC NORTHWEST

By David Hall

160 pages, softcover; \$45.

University of Washington Press, 2011.

In 1995, seasoned underwater photographer David Hall made his first dive in British Columbia, at Browning Passage. That was the day he fell in love with the chilly seawaters of the Pacific Northwest and the astonishing color and diversity of life in the depths. *Beneath Cold Seas*, which won the National Outdoor Book Award in 2012 and was republished in 2015, showcases Hall's intricate, vivid photographs of the marine plants, mammals, fish and invertebrates — everything from harbor seals and salmon to sea stars, octopus and luminous jellyfish — that live along the Pacific Coast, from Northern California all the way to Canada and Alaska. As marine biologist Sarika Cullis-Suzuki writes in the introduction, "David's photographs help us zoom in, focus, and see with clarity the exquisiteness of what lies below the waves." **LYNDESEY GILPIN**

Farewell to a valuable staff member

For the first time in several years, the blossoms on the apricot trees at the *High Country News* headquarters in Paonia survived the spring frosts, and bright green nascent fruit is already weighing down the branches. Throughout the valley, all the fruit seems to be thriving — from peaches and nectarines to apples and wine grapes. Now, legions of hummingbirds fill the air with their buzz as the tiny birds make their way toward the high country.

Here at *HCN*, big changes are afoot. We said goodbye to associate publisher **Alexis Halbert** in May — but not before a sunny send-off with an abundant potluck and *HCN*-style frivolity at the local brewery. Alexis has relocated to Denver to begin working as a senior program officer with the Orton Family Foundation, where she will continue to pursue her passion for rural community development. We're sad to see you go, Alexis. Good luck!

Coming up, *HCN* board member **John Belkin** hosts former Interior Secretary **Ken Salazar** in Crested Butte, Colorado, on June 22, with a reception starting at 5:30 p.m. Salazar will discuss energy, environmental, natural resources and tribal issues. Drinks and hors d'oeuvres will be served; suggested donation is \$75. For more information, see **www.hcn.org/CBevent**. To RSVP, call 970-

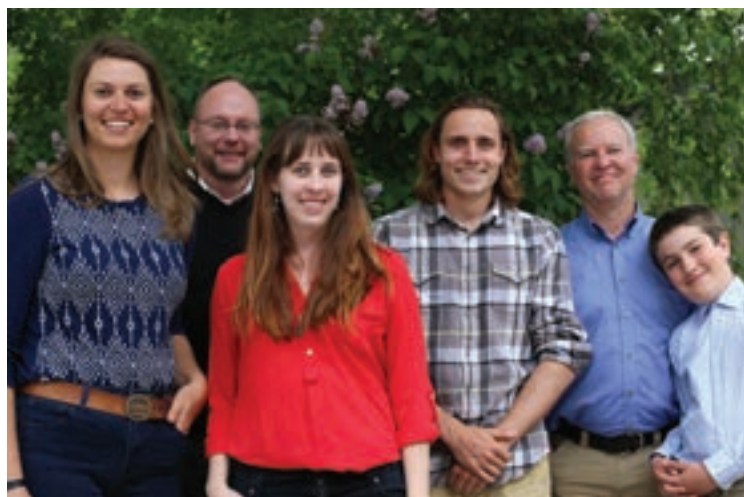
527-4898 or email **alyssap@hcn.org**. We hope to see you there!

We've had some especially interesting visitors recently, including a group from the Institute of Arctic and Alpine Research at the University of Colorado at Boulder that was in town for an air-quality project. As part of that effort, **Katya Hafich, Ashley Collnet, Daniel Knight, Erik Hotaling, and Mike and Galileo Hannigan** spent time working with Delta County High Schools on pollution education and installing air-quality monitors. Katya and gang stopped by *HCN* to see what we were up to, then ended their visit to the valley with a poster-making session at Delta High School.

We were also delighted to meet former magazine publisher **Elaine Leass**, fresh off a recent trip to Kunming, China. Before heading home to Colorado's Front Range, Elaine added Paonia and the Black Canyon of the Gunnison to her travel schedule. Being back in a newsroom brought on some nostalgia; Elaine is the former owner and publisher of the now-shuttered *Rocky Mountain Oyster*, which she sold in 2007.

One correction: In "Under Water," published May 30, we misplaced Hetch Hetchy. It is north of Yosemite Valley, not south. Our regrets.

—*Paige Blankenbuehler*
for the staff



Members of the Institute of Arctic and Alpine Research at the University of Colorado at Boulder came to visit while they worked with local Delta County high schools on air-quality education. **BROOKE WARREN**

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Water to Dust

Oregon's obscure terminal lakes feed millions of migrating birds, but now these waters need life support of their own

T

FEATURE
BY HILLARY
ROSNER

o reach Lake Abert, in the high desert of southern Oregon, you can drive south from Bend for about two and a half hours, across the remote northern end of the Great Basin, where there is nothing but you and the sky and the occasional prairie dog dashing across the road. Or you can head north from Reno for four hours, across an equally remote slice of far northeastern California, where, in the rolling sagebrush of the Lassen National Forest, you might feel as if you've reached the center of nowhere.

Which is to say, Lake Abert is seriously off the beaten path. Unless you're a migrating shorebird or waterbird: an eared grebe, perhaps, or a Wilson's phalarope. In that case, chances are high that your ancestors have visited Lake Abert every fall — and perhaps every spring — for thousands of years. There, generation after generation, they've fattened up for the long journey to South America, happily chowing down on the brine shrimp and brine flies that usually thrive in this vast salt lake. This August or September, though, when your flock touches down at Lake Abert, you might find that the 36,500-acre basin has turned to dust.

That happened last summer, when the lake was effectively dry. Winds swept clouds of salty earth across the desiccated lakebed, and there was no brine for shrimp and flies to grow in. The year before, in 2014, the lake had been close to dry, too, for the first time since the 1930s. What little water remained was too salty for the invertebrates, meaning there was nothing for the birds to eat. In a normal August, Craig Foster, the local biologist for the Oregon Department of Fish and Wildlife, will count a million phalaropes — rusty-backed sandpipers that swim in circles as they feed. "But last year," he says, "I think we had like 2,000."

Foster has a white handlebar mustache and the tanned, grizzled countenance of a life lived outdoors in the sun. He has spent much of it here in Lake County, nearly 8,400 square miles of ranchland where the population is roughly one person per square mile. Most towns are little more than a general store, and you can drive for nearly 100 miles without finding gas.



During the first week of September, Foster says, it usually takes him two and a half hours to drive up U.S. 395, on Abert's eastern rim, stopping at every pullout to count shorebirds. Last year, it took 20 minutes. "You stop, set up your spotting scope, and go, yeah, there's six gulls and three ravens," Foster told me, as we stood at Abert's edge in late April, watching a few dozen grebes float in the cool water.

Where the birds went last year is a mystery. In the network of a half dozen or so nearby lakes that make up a mosaic of Pacific Flyway stopping points — including Goose Lake, on the California border; Summer Lake, northwest of Abert; and Hart Lake, eastward in the Warner Valley — many were vanishingly



low. And this corner of the Great Basin represents but one tale in an anthology of system-wide decline. “If you just had one lake in isolation that failed, you might be inclined to say that’s not that big a deal,” says Stanley Senner, a shorebird expert and the National Audubon Society’s vice president for Pacific Flyway bird conservation. “The discouraging thing is, we’re looking at region-wide degradation and loss of saline lakes.”

The three dozen or so species of waterbirds that use this part of the Great Basin — including ducks, geese, gulls, terns, American avocets and black-necked stilts — have adapted to these lakes’ highly variable conditions over thousands of years. If one lake is dry, they observe it from the air and veer off to another.

“The problem going forward,” says Senner, “is that what’s been highly variable in the past may be rapidly moving toward a steady-state decline, where you have problems at multiple sites. And then I don’t see any way that the bird populations can be sustained in the kind of numbers they have seen historically.”

With warmer temperatures and persistent drought likely to become the regional status quo, these lakes face an increasingly precarious future.

What will happen this year is uncertain. When I visited it with Foster, Lake Abert was just one-eighth full. Its main source, the Chewaucan River (pronounced *she-wa-can*), was still spilling into the lake. But irrigation season was just days away,

Lake Abert water levels had yet to reach this gauge in early May despite a good water year in southern Oregon.

ELI REICHMAN



ELI REICHMAN



RON LARSON



RON LARSON

Biologist Craig Foster, top, chronicles dramatic changes in bird populations at Lake Abert, tied to changing water levels. Center, alkali flies, which can grow by the millions on the shoreline. Above, in the summer of 2010, high salinity, hot temperatures and little wind combined to kill brine shrimp, forming red streaks at the surface.

and once the upstream ranchers began drawing river water, there might soon be none left for the lake. Like so many rivers in the West, the Chewaucan is over-allocated. Historically, some water would flow into the lake year-round. But now, during drought years, “there’s not enough water to go around,” Foster says. “Whatever water you get in a drought year comes before irrigation season starts.”

Unfortunately for the birds, they use the lake primarily in late summer, which is exactly when it may become largely dry. Lake Abert ranks among the most important sites in the Western Hemisphere for shorebirds. Surely, you might think, there must be a plan in place — or at least in the works — to ensure adequate water levels. But you’d be wrong. Despite its recognized international importance — it may be crucial to some bird populations’ survival — Lake Abert has no legal right to water. And, at present, the only agency that has jurisdiction over its water — the Oregon Water Resources Department — has no plans to change anything.

BACK IN THE LATE PLEISTOCENE, maybe 25,000 years ago, a massive glacial lake called Pluvial Lake Chewaucan covered 480 square miles of what’s now southern Oregon. In those wetter, colder times, the giant lake, formed by rocky blocks of earth dropping down along a fault line, was 350 feet deep in spots. About 4,000 years ago, as the climate warmed and dried, river flows slowed and the large lake shrank into a few smaller, disconnected, shallow ones. Drive through the region’s valleys today, and you can see the ancient shorelines embossed on hillsides.

Today, even when completely full, Lake Abert averages just seven feet deep. Abert and its companion lakes are closed-basin systems — terminal lakes, the end points of rivers, with no outlet except to the air. Lake County averages 49 inches of evaporation a year, Foster says, but just 10 inches of precipitation.

By the late 1800s, when European settlers arrived, the Great Basin was the desert we know today. To raise cattle and grow crops, settlers needed water. “So people start diverting water out of the rivers, streams, even the springs that feed these dying lakes,” says Michael Crotteau, a forest hydrologist and the climate change coordinator for the U.S. Forest Service’s office in Lakeview, the seat of Lake County, about 25 miles south of Abert.

Crotteau arrived in his current post in the summer of 2014, two years into the drought. “Goose Lake was completely dry,” he recalls. “Summer Lake was completely dry. Abert had just a puddle in it.” He marvels at the fact that, into the early 1900s, there was regular north-south ferry service across Goose Lake’s 26 miles. In April, I’d been driving north alongside the lakebed for nearly 15 minutes before I realized it was in fact Goose Lake, and that there was water shimmer-

ing somewhere way out in its middle.

According to climate models, this part of the country will see an increase of 2.6 degrees Celsius (4.7 Fahrenheit) by 2040 or so, and upwards of 4.7 degrees Celsius (8.5 Fahrenheit) by 2090. “What it really does mean, that we saw in winter of 2014 to 2015, is a lot less winter snow,” Crotteau says. It’s not so much the amount of precipitation, but the type that will change. Melting snowpack delivers a consistent supply of what Crotteau calls “live water.” With less of that to sustain the river’s flows during the irrigation season, he says, “the lakes will see a drop in their water levels a lot faster than they do now.”

That means Abert might contain water in the spring but be largely dry by mid-summer — exactly when hungry birds begin arriving from Alaska and Canada, looking for easy, high-protein food to fuel their journeys.

Abert and the Great Basin’s other saline lakes are home to vast numbers of brine shrimp and brine flies that breed in the alkaline water and evolved to tolerate precise levels of salinity and pH. When full of water that’s just the right chemistry, the lake might teem with 41,000 tons of brine shrimp over the course of a summer. For waterbirds, it’s like landing in a giant bowl of soup. “It’s a hyper-abundant, highly concentrated food supply,” says Senner. “It makes it much easier for them to fatten up.”

Brine flies, meanwhile, grow by the millions on the shoreline, laying their eggs on moistened rocks at the water’s edge and serving as an essential protein source for other birds.

But tinker with the water’s chemistry — make it too salty or too fresh, or too basic or too acidic — and neither shrimp nor flies will breed.

Each of the lakes in this part of Oregon differs slightly in terms of hydrology and ecology — some are spring-fed, some fill and dry in regular cycles, some are more saline, some more alkaline — and each hosts different types of bird food and habitat. Susan Haig, a wildlife biologist with the U.S. Geological Survey who has spent 22 years studying the Great Basin’s birds, describes the system as a “mosaic” of wetlands, easily visible from a birds’-eye view. Some years, she says, if there’s a lot of snowmelt, Lake Abert will be fresher and Summer Lake may be saltier, meaning the food available at each site shifts. “The birds really are aware of the changes in these salinities and in what’s available for food,” Haig says. “They adapt what they’re doing.”

Still, she says, “Abert is a kingpin in the system because it’s such a big food supply. If you lose Abert, it’s really not so good.”

EXACTLY WHAT IS RESPONSIBLE for the lakes’ demise is a matter of contention, and arguing about it turned ugly the first summer Abert dried up. A 2014 investigative report by the *Oregonian* and a TV



Barn swallows fly over the narrows area of the Chewaucan River, where it transitions from the lower marsh into the Rivers End Ranch. ELI REICHMAN

segment on Oregon Public Broadcasting both came down hard on state agencies for effectively sitting by and watching a crucial shorebird migration stop disappear. Since then, the mere mention of Lake Abert by a reporter sets everyone on edge. I had to plead with some state and federal agencies just to get someone to talk to me.

At issue is the question of whether what you might call “natural” factors are to blame, or whether the problem is too many people taking too much water out of the river.

The “nature” argument goes like this: An extremely dry cycle, caused by either natural fluctuations or global warming (depending on whom you ask), brought far less snow to the mountains, and what little did fall melted out early, leaving less water in the river. “People don’t like it,” says Foster, “but this is just Mother Nature doing her thing.”

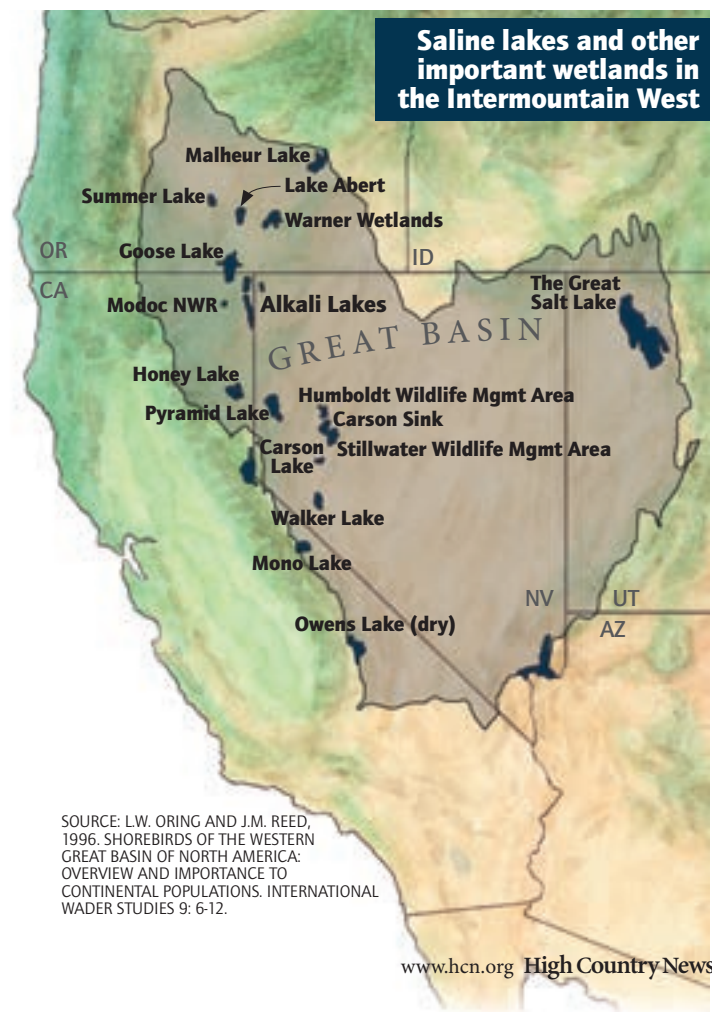
“We all had ancestors who went through the ’30s, when it was drier than it got during this drought,” says John O’Keefe, a local rancher and president of the Oregon Cattlemen’s Association, whose family has raised cattle in Lake County since the early 1900s. “So we tend to feel that it’s part of the natural cycle and not so much a permanent change.”

If you eliminated agriculture, O’Keefe says, “at least in these lakes around here, you wouldn’t really change the big picture. They’ll go down in the dry cycles, they’ll come up in the wet cycles.”

Kyle Gorman, the South Central Region manager for the Oregon Water Resources Department, is also in the “nature” camp. He points out that since the early 1900s, there’s been little change in “consumptive use” of Chewaucan River water. The number of acres legally allowed to be irrigated with surface water rights has barely grown: Today, it’s about 40,000; in 1900, it was around 37,000.

“The main thing is, climate is the huge driver on those systems,” Gorman says. Based on an established hydrological model created by the USGS, Gorman says, it makes sense that Abert was dry the last couple years. “All the things that we look at say that climate over the last decade has been significantly drier than previous decades,” he told me when I visited him at his office in Bend. This year, with above-average — though not spectacular — snowpack, “we’re seeing a remarkable recovery.”

No one denies this spring is looking much better than the last two. Ron Larson, a retired biologist who has been studying Abert, and who visited it in





Ranch hands from the ZX Ranch drive cattle across Oregon Highway 395. ELI REICHMAN

early May, a couple of weeks after I was there, called what he saw “good news.” The lake was less saline than normal, but Larson found small brine shrimp “present in good numbers” and patches of brine flies along the shores. His conclusion was a bit more measured than Gorman’s: “We will have to see how conditions develop to know if there is a recovery,” he wrote in an email. Still, he says he’s optimistic.

Larson belongs to the other camp, a loose collection of independent scientists who say upstream water diversions bear much of the blame. David Herbst, an aquatic ecologist who has spent years studying salt lakes in the Great Basin and internationally, argues that there is simply no way you can ignore the impact of water diversions. Drought is obviously playing a role, says Herbst, and climate change poses an increasing threat. But human water use is “orders of magnitude” more important. “We’re talking about almost complete loss of incoming water” to the lake, Herbst says. “A severe drought might cut water by 50 percent. We’re talking about 100 percent, year after year.”

Also in this camp is Johnnie Moore, geochemist, birder and professor emeritus at the University of Montana, who got interested in the plight of Lake Abert a few years ago. This winter, Moore pub-

lished research concluding that the lake’s low water and high pH were directly caused by upstream water withdrawals. “Change in climate alone would not produce the recent low lake volumes and high salinities that have destroyed the brine shrimp and alkali fly populations and depleted shorebird use at Lake Abert,” he wrote.

Using satellite data to measure changes in the lake from 1972 to 2015, plus regional climate records, river flow records, salinity calculations, and other methods, Moore tried to “disentangle” direct human impacts from climate effects. The ecosystem, he concluded, “would have been stressed in recent droughts, but not decimated as it has been in the last two years.”

FOR ALL THE SQUABBLING over cause, though, it’s not clear the answer matters that much, at least in the immediate future. The river is legally over-allocated; that’s a fact. Global warming is changing the snowpack, so there will be less water flowing through the Chewaucan River into Lake Abert; this is also almost certainly a fact. Whichever factor is the smoking gun, both represent the system’s prevailing conditions. And neither one is going away anytime soon.

But only one of these factors — in

theory, anyway — is alterable: irrigation. One possible way to keep Abert’s water levels, salinity and alkalinity stable during dry years would be to ask ranchers to use less water at certain times.

Aside from the obvious obstacles — livelihoods might be at stake, entire communities have grown up around existing water rights — there’s another complicating factor. Most local ranches grow native hay, the same types of grasses that grew here naturally, and during spring runoff, the ranchers flood their meadows, creating artificial wetlands. These wetlands teem with birds — ducks, geese, sandhill cranes, white-faced ibises. “The amount of waterfowl and waterbird use in the marshes is equally as stupendous or phenomenal as the amount of shorebird use on this lake,” says Foster. Roughly 80 percent of the pintail ducks on the Pacific Flyway, for instance, stop in these human-altered Chewaucan marshes. Filling Abert might mean sacrificing one set of birds for another.

Abert’s federal landlord, the Bureau of Land Management, is focused on the lake’s ecosystem and importance to migrating birds, and it has designated Lake Abert an “area of critical environmental concern.” What that does, explains Todd Forbes, the BLM’s field manager for its Lakeview Resource Area, “is make it

easier for us to say, ‘This area of Abert Lake is really important to migratory birds, so everything else is going to take a backseat.’” That has meant saying no to a proposed sodium mining operation and a pumped-storage hydroelectric project. (The latter seems particularly absurd, given current lake levels.) It has also meant keeping the lake off-limits to everything from new roads to motorized recreation to windsurfing. But while the BLM’s designation is admirable, it’s also a bit misleading. Because, in fact, the BLM has absolutely zero jurisdiction over Lake Abert’s most important aspect: its water.

The agency in charge of that is the Oregon Water Resources Department. Yet the department does not measure how much water flows into the lake. There’s not even a gauge in place. “Because Abert doesn’t have a water right, there’s been no historic reason the water resources department would need to measure water into the lake,” says Gorman. “There’s no water right to protect. Historically, it hasn’t been at the forefront of our concerns about what’s going on in that area.”

Recently, partly in response to the controversy, the department installed gauges on seven diversions along the Chewaucan River. Gorman doubts that anyone is taking even close to what the water rights allow. But measuring it will be “an added bit of information so we can do a thorough analysis.”

The department also has a new grant program for something called “place-based funding.” This, Gorman suggests, might be a way to start exploring potential solutions. Like the BLM designation, though, it’s commendable but seems pretty flaccid considering what’s at stake. “You’d want to develop a hydrologic model from the lake and say, ‘If we lease some water in-stream’” — pay ranchers to leave water in Chewaucan River — “‘will that have an effect on the lake?’ When you talk about in-stream leasing and transfers, it’s always through a mutual or a voluntary basis, not a top-down approach from the department.” In other words, a broad-based group of local stakeholders would need to apply, through a competitive process, for money to fund research into possible ways to keep water in the lake. It doesn’t exactly sound user-friendly. So far, no one from the region has applied.

“It’s accurate to say, right now at least, that no one in a position of responsibility for water management seems to be actively trying to address the problem,” says Audubon’s Senner. He believes that the water department’s stated mission — which includes ensuring “the long-term sustainability of Oregon’s ecosystems, economy, and quality of life” — provides a possible opening. “We think that there is, if not the letter of the law, the intent of the law. The purpose of the department is to find solutions to problems like this.” He also believes, though, that protecting Lake Abert will require

a collective effort by many groups. “It’s gonna take more than an environmental group, more than the local community — some kind of a multi-stakeholder effort to find an acceptable path forward.”

Haig, of the USGS, is hoping to spur such an effort. She has collected data from the past century for the western Great Basin’s entire system of wetlands — rainfall, snow, temperature, water levels in different lakes — and she hopes to use that information as the basis for just the sort of approach Gorman described. She is currently applying for grants to “get some stakeholders together” and start asking questions: What are you concerned about? What would you be willing to accept? “And then we’d take the data and do some modeling. Call them back when we have some answers, present what would happen as a result of different management actions.”

While she waits for funding, though, Haig is studying bugs. She’s intrigued by another crucial question: Could bird food move across the landscape? Which wetlands are most important, and what might happen if they disappear?

In her government lab at Oregon State University in Corvallis, at the edge of the Cascades and 200 miles from Lake Abert as the phalarope flies, Haig showed me vials containing brine shrimp, brine flies, waterboatmen, and other water-dwelling invertebrates that her team collected in Lake County. Using genetic data, they’re trying to understand how and why these creatures occur in particular places. “If insects are capable of long-distance movements, maybe they can colonize new habitats or switch to water that wasn’t previously suitable,” Haig explains. Still, the particular composition of Lake Abert, she says, would be hard to replicate “unless some yet-to-be-discovered hyper-saline source of water appears.” If Abert disappears, its soup of briny delicacies would likely vanish, too. And unfortunately, the next closest lakes with similar salty conditions are Great Salt Lake and Mono Lake, “which are likely too far for birds to fly on their migration routes without starving.”

SUMMER LAKE, northwest of Abert, is a wildlife refuge managed by the Oregon Department of Fish and Wildlife. It has a webpage offering basic visitor information and touting it as “one of the best places in Oregon” for birdwatching. But look up Lake Abert, and mostly what you’ll find are bleak descriptions, using words like “forlorn” and “desolate.”

Rising along the western edge of Lake Abert and stretching for more than 30 miles is Abert Rim, a 2,500-foot fault scarp — a cliff caused by earth shifting along a fault — that gives the lake a dramatic backdrop but also hems it in, making it feel even more isolated. Parking his pickup at a pullout beneath the rim, Foster and I scrambled down the slope from the highway to the shore for a better look at the water level, the grebes,



KELLY HUBER/USGS



PAT SENNER



ELI REICHMAN

USGS senior scientist Susan Haig, top, picks aquatic invertebrates out of a sampling net in preparation for genetic analysis. Shorebird expert Stanley Senner of the Audubon Society in coastal Oregon, center. Sprinklers at the ZX Ranch, whose irrigation water comes from the overallocated Chewaucan River.

A flock of northern shovelers, along with a few American avocets and California gulls, takes flight from the shore of Lake Abert in the fall of 2011, a relatively wet year. Birds can number in the millions during peak migration months or in the thousands, if it's dry.

RON LARSON



and the salt-crusted shoreline, which was lined with volcanic rocks and mats of discarded brine-fly exoskeletons. The wind drowned out what traffic there was on the road above us, and the desert sun did its best to heat a chilly afternoon. Standing there it felt like the whole world had vanished away.

Other than locals, a few government managers, a handful of scientists, and birders, not many people even know Lake Abert exists. And that may make conserving it a challenge. “Mono Lake got championed because it was just east of Yosemite, on a highway a lot of people go up and down,” says Herbst, the aquatic ecologist. “So they see it, and it’s a super-scenic place.”

But Lake Abert is the opposite, isolated in an isolated corner of the world. And it holds no real economic value, since the birds that use it aren’t the kind people hunt. “Coming to Lake Abert and looking at shorebirds is not a million-dollar industry,” jokes Foster.

What will it take to save Lake Abert, and the rest of Oregon’s terminal lakes? The current drought has left Mono Lake just 13 inches above an “ecologically precipitous” level, despite nearly 40 years of conservation efforts and a successful legal battle waged by a 20,000-member organization. And that Mono Lake-scale of dedication and support seems unlikely here, at least in the near term. Though the hour is late for Oregon’s terminal lakes, the will to act on their behalf is only just stirring. The National Audubon Society recently finished a new strategic plan that identifies Western water as a core theme for the next five years. But what exactly that means, and where the money will come from, and go to, is an open question.

The Intermountain West Joint Venture, a partnership-based migratory bird conservation program connected to the

U.S. Fish and Wildlife Service, is midway through a project using 30 years of satellite images to track how water moves across the landscape and through time — to “capture a picture of how the landscape breathes,” as Josh Vest, the program’s science coordinator, puts it. In the near future, Vest hopes the work will translate into “some strategic investments in conservation” in southern Oregon.

Although about 80 percent of the Intermountain West is public lands, about 70 percent of its emergent wetlands — marshes, wet meadows, prairie potholes — are on private land. “We’re trying to provide conservation strategies that can fit within these working landscapes,” Vest says.

In that respect, any mechanism for saving Abert will have to follow a path already blazed by a century of migratory bird conservation. “To create viable refuges, the FWS had to carve out new spaces within this irrigated, industrialized agricultural landscape,” wrote Syracuse University geographer Robert Wilson in his book *Seeking Refuge: Birds and Landscapes of the Pacific Flyway*. Drive along the Chewaucan marshes west of Lake Abert in the spring, and if you don’t know what you’re looking at, you could easily mistake it for a natural wetland system. Sandhill cranes wade elegantly through flooded meadows under the desert sun, in postcard-perfect marsh scenery. But the wetlands fill and drain with the help of human hands.

“People have settled and roads have gone through and all kinds of things have happened,” says rancher John O’Keefe. “So the manipulation we get from the diversion and spreading of the water and draining of the water is probably the closest thing to the natural flooding and receding that we could have in the current environment.” We were drinking cof-

fee beneath the taxidermy — deer, bison, pronghorns — at the Adel Store, a shop, café, bar and general community hub in this Irish Catholic community of about 60 people. “To the extent that we interfere with that process, we’ll probably be moving away from the natural processes rather than back to ‘em.” As we stood to leave, I offered to pay for our coffee, and O’Keefe laughed. “They don’t take money here,” he said.

Isolated as it seems, though, this tiny community depends on interconnected systems — highways, for instance, and a market for beef. The Pacific Flyway, too, is an interconnected system, its lakes and wetlands vital links in a chain. Over the past 150 years — the blink of an eye in the history of migratory bird species — many of what Wilson calls “the blue spots on a map” have disappeared. That has left a rusting chain, and a system pushed to the edge. “There’s very little redundancy now,” Wilson says. “The loss of Abert a hundred years ago might not have mattered. But now it does.”

Whether we can find a way to protect the lake — and other similarly threatened saline lakes in the Great Basin and around the world — may ultimately determine what sort of birds will fly overhead in the future.

“I had a lady call me; she said, ‘You don’t care about the shorebirds on Lake Abert,’” Foster told me as we took turns looking through binoculars at the grebes diving in the lake: duck-like, with black bodies and fuzzy-looking heads. “I said, ‘I do care! But Oregon’s got water laws, nobody’s violating water laws, nobody’s using more water than they’re allowed. It’s a drought year, we’ve got 49 inches of evaporation annually.’ And she said, ‘What are we gonna do?’ I said, ‘The only thing I know to do is get on your knees and pray.’” □



Hillary Rosner writes about science and the environment for *Wired*, *National Geographic*, *Scientific American* and other publications. She lives in Boulder, Colorado.

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



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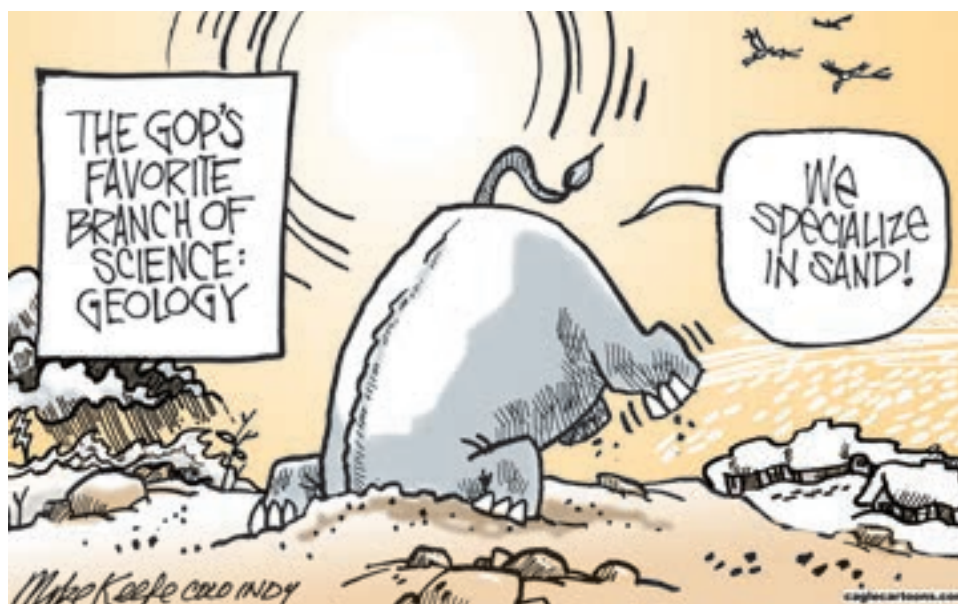


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Some state legislators prefer fantasy to fact



OPINION BY
AUDEN
SCHENDLER

Let's say you were a legislator in Colorado during this year's session, and you needed some help making policy decisions on a topic that required scientific knowledge. What might you do?

Because you're a booster of the state, you'd know that we have some of the finest academic and research institutions in the country. These include the University of Colorado, Colorado State University, the University of Denver, the National Renewable Energy Lab, and the National Center for Atmospheric Research. So it would make sense to ask those groups what they think on a given subject before moving forward. That, after all, is how public policy-making ought to work: Get the facts, make the policy.

But the facts-first and policy-later approach is not how some Colorado leaders like to tackle at least one serious issue: climate change. During Colorado Senate debate about adopting targets for the state's Climate Action Plan, Sen. Kevin Lundberg, R, testified that the science wasn't "settled" yet. Sen. John Cooke, also a Republican, went further. Man-made climate change was a myth, he said, effectively putting our hard work on climate change on the same level as believing in unicorns and fairies. Neither man is one of the fringe elements of the Legislature; in fact, the leading force behind climate denial has been the Republican president of the Senate, Sen. Bill Cadman.

Yet their positions run counter to conclusions reached by every one of the state's academic and research academies. Are these elected officials really discounting the work of our great state institutions?

There is absolutely no scientific case to be made for denying human impact

on climate change. That means that the opinions of these legislators are just that — opinions based solely on hearsay or newspaper and talk-show statements by non-scientists who cite non-climatologists. If that's how some policymakers approach this issue, how are they thinking about health care, economics, public safety, education or water quality? Is this the approach you'd take when fixing your car, having serious surgery, or making health-care decisions for your child?

Most lawmakers in the nation and around the world don't act this irresponsibly. Science-based policymaking on climate issues has become a global phenomenon, now integrated into decision-making by almost 200 nations and in every area of our federal government.

In Miami, the science behind rising seas is one of daily concern. For water planners in California, drought science is nothing short of riveting, and in Alaska, where coastal communities built on permafrost are collapsing into the sea, science is meeting the budget in painful ways.

Lawmaking based on ideology is damaging in material ways. At the end of March, Colorado GOP legislators voted to defund the state Department of Health and Environment so that it can't issue air-quality permits or perform inspections. Why? Because these elected officials oppose enforcement of the Environmental Protection Agency's Clean Power Plan, the American response to climate change, which brought China and India to the table in Paris to try to broker a global deal.

But defunding an environmental agency won't stop the Clean Power Plan; it merely hurts business. First, it does nothing to stop regulation, despite what

some might think; it merely delays it. That means law-abiding businesses that need air permits to operate will simply have to wait, and then wait some more. Second, polluters breaking the law and violating the Clean Air Act at the expense of our kids' health will no longer get caught and punished. (This is not a controversial issue: We all agreed that clean air was a good idea in the '70s, and Americans overwhelmingly support the Clean Air Act.) Third, if Colorado refuses to do this work, the EPA will step in, so you'll get out-of-state regulation anyway, exactly the opposite of the GOP's goals for the state.

Why do legislators want to do this silly stuff? Because, according to Rep. Bob Rankin, Western Slope residents are "terrified" of the EPA Clean Power Plan. Give me a break: The state has mostly met the plan. Solar energy is thriving and producing tons of jobs. Aspen/Snowmass and Vail Resorts, responsible directly or indirectly for tens of thousands of jobs, both support the plan. Even the gas drillers at WPX Energy I met with last fall were diligently monitoring their own methane emissions and were hardly terrified.

Fact-based policy-making tends to work really well. It's when we make decisions based on fantasy, sadly, that real people and real businesses suffer. □

Auden Schendler is vice president of sustainability for the Aspen Skiing Company and board chair of Protect Our Winters.

Writers on the Range is a syndicated service of High Country News, providing three opinion columns each week to more than 70 newspapers around the West. For more information, contact Betsy Marston, betsym@hcn.org, 970-527-4898.

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Above, Everett Ruess, a 20-year-old vagabond, poet and artist who vanished in the Utah wilderness in 1934. His is one of the mysteries described in *Disappearances*. Left, the Glen and Bessie Hyde rescue expedition at Spencer Canyon on the Colorado River in the Grand Canyon in 1928. FORT LEWIS COLLEGE, CENTER OF SOUTHWEST STUDIES, ANSEL HALL; NORTHERN ARIZONA UNIVERSITY, CLINE LIBRARY, KOLB, EMERY, 1881-1976.

The lost of canyon country

“A helluva place to lose a cow,” Mormon pioneer Ebenezer Bryce allegedly quipped about the southern Utah scarp of hoodoos that still bears his name. And not just cattle, but even smart people with maps and survival gear have vanished into the folds of the Colorado Plateau’s convoluted topography.

Dreamers and adventurers have long been drawn to the region, for various reasons. Spanish explorer García López de Cárdenas first peered into the Grand Canyon while chasing the Seven Cities of Gold; early trappers like Antoine Robidoux sought wealth of the furry kind, and Brigham Young his God’s Promised Land. In 1869, John Wesley Powell came through, but three crewmembers left before the expedition’s end, only to be killed by Mormons or perhaps Paiutes — nobody knows for sure. To this day, spell-bound wanderers seek out these canyons; some never leave, ultimately adding their bones to those already enriching the barren ground.

Among the more famous missing are Glen and Bessie Hyde, Jazz-Age

honeymooners who hoped to cash in by becoming the first couple to float through the Grand Canyon. (Brad Dimock deftly speculated about their end in *Sunk Without A Sound*.) A few mysteries were ultimately solved: Twenty-five years after he flipped his boat in the Grand Canyon’s 24.5-Mile Rapid at age 80, Colorado River legend Bert Loper’s remains showed up on a beach at Cardenas Creek. According to the meticulous roster Thomas Myers and Michael Ghiglieri compiled in *Over the Edge*, at least six people rest in obscurity in the Grand Canyon alone.

The latest in this literature of the Colorado Plateau as Bermuda Triangle is *Disappearances* by Scott Thybony, former Grand Canyon river guide and archaeologist. “The ratio between wild and tame has shifted,” he writes, “but some of us still find ways of getting into trouble.”

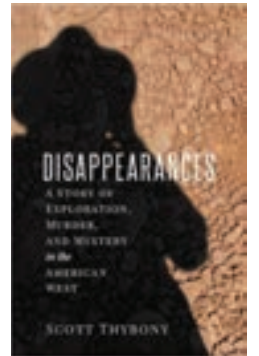
Interspersed with boots-on-the-ground research that took him from Texas to southern Utah, the book probes the fate of three of those who got into trouble during the 1930s: Lucile Garrett, a woodcutter’s daughter from Oklahoma,

who fled west with the fugitive who murdered her father and lived with the killer in an isolated canyon along the San Juan River; Dan Thrapp, a 21-year-old paleontologist on leave from the American Museum of Natural History, who disappeared on his search for undiscovered cliff dwellings in Dark Canyon near Blanding, Utah — “Indian Legends Lured Lost Man,” one *Salt Lake Tribune* headline shouted; and the iconic Everett Ruess, a footloose, romantic artist from California who vanished in the Escalante region in 1934. His final tracks led into Davis Gulch, where only his pack burros, a bridle, and graffiti spelling out NEMO were found. Some sleuths think that cattle rustlers or Indians murdered the youth and hid the body (W. L. Rusho, *The Mystery of Everett Ruess*; David Roberts, *Finding Everett Ruess*), but others surmise he staged his own disappearance to live incognito on the reservation with a Navajo wife.

“In a country where canyons lie sunk within canyons and tiers of cliffs stack one on top of another, the mysteries come layered,” Thybony writes, and the three stories he traces take some unexpected turns. According to his findings, Ruess fell into a rock crevice while exploring near an alcove campsite, and his decomposing body washed down Davis Gulch with the monsoons. Thybony investigates the “murders and even the madness” his protagonists suffered as a way to grasp “the wonder and dread they had experienced in a place so different from any they had known before.” Dark tales intrigue this writer, who also has long suspected that Ambrose Bierce, supposedly shot in Pancho Villa’s revolution, took his own life somewhere in the Grand Canyon.

Although that theory remains unproven, the riddle of one modern-day disappearance was recently solved. In 2010, a man wounded a Utah state park ranger at a trailhead near Moab and then fled into the sandstone void. Police combed the area to no avail. But in late December 2015, a local college student and his teenage brother — sons of a Moab police detective who’d participated in the 2010 search — found Lance Leroy Arellano’s bones and pistol in a cave near town, and thereby earned a \$30,000 reward. But plenty of other canyon country mysteries still remain to rivet our imagination. Our need for the unknown is just one more reason to preserve what Thybony calls “big reaches of distance lying close to the human heart.” Weaned on Hollywood fare, we need our Western folk heroes — like Hayduke or the Lone Ranger — to keep riding off forever, into the sunset.

BY MICHAEL ENGELHARD



Disappearances: A Story of Exploration, Murder, and Mystery in the American West

Scott Thybony
288 pages, softcover:
\$24.95.
University of Utah Press,
2016.

Weight of water

ESSAY BY HAL HERRING

The lynx sat atop the carcass of a giant bull elk, licking frozen meat off the exposed neck. As we approached from downriver, sliding our skis up the wind-polished ice, the lynx leapt over the cornice of snow above the river and padded away uphill to a patch of firs. The four of us stopped to look at the bull, keeping wary eyes on the ice. Beneath our skis, the currents of the North Fork of the Sun River showed in places as if through glass, the water coiling and bubbling, changing color as the low sun was eclipsed by banks of wind-blown cloud.

Around us yawned the North Fork Valley, its rich grass-land wilderness locked tight beneath 56 inches of snow, and edged with ragged white and black peaks — Sheep Mountain, Slategoat. A herd of almost 3,000 elk summers here, but beyond the evidence of the dead bull, there was no indication that so much life existed — no track of deer or moose or wolf, not even hare, only the wide splayed prints of the lynx. The silence was absolute. It was 15 degrees below zero at 11 a.m. I tried to take a photo of the bull, but my camera was frozen.

I was traveling in Montana's Bob Marshall Wilderness with Russ Owen, a fire and fuels specialist for the U.S. Forest Service; Bill Avey, the supervisor of the Lewis and Clark and Helena national forests; and Kraig Lang, who has been the wilderness ranger in this part of the forest for most of his career. We didn't linger; the cold was pure force, a presence that you moved through like a deep-sea diver, and we had a job to do. Over the next three days, we would ski a hundred miles in order to collect a season's worth of data — and uphold the proud American tradition of knowing, at least in the arid agricultural West, exactly

how much cream is there for the churning.

Snow surveys in the American West date back to 1906, when, on the colossal 10,785-foot Mount Rose in Nevada's Carson Range, James E. Church first developed the techniques for measuring the water content of mountain snow. Church, a Michigander educated in Germany, was a professor of Latin, German and fine arts, but had a mountain climber's heart and a scientist's mind. He took a keen interest in his adopted region's primary asset: water.

Church built what would come to be known as the Mount Rose Snow Sampler, a 10-foot-long metal tube, 1.5 inches in diameter on the inside, with serrations at the base that allow the user to twist and cut through the snowpack to the ground. The tube is weighed on a portable scale hung from a ski pole; since one inch of water in the tube weighs about one ounce, the weight can be used to calculate both the snow depth and the water content of the snow in a specific area. Church also developed what he called "snow courses," a series of fixed measurement sites that cover a range of elevations, slopes and exposures. Each spring, data collected from the courses provide a detailed picture of the coming flood and irrigation season.

Church's system was adopted across the West. In 1935, the USDA's Natural Resources Conservation Service created the Snow Survey and Water Supply Forecast. It now includes 900 manual snow courses as well as 750 automated Snowpack Telemetry Weather Stations — known as SNOTEL stations — across 13 Western states, including Alaska, mostly in high-mountain watersheds. SNOTEL stations automatically deliver

Hal Herring, Bill Avey and Kraig Lang at the Gates Park Cabin in the Bob Marshall Wilderness, which kept them sheltered from a snowstorm before skiing more than 20 miles out of the wilderness to the trailhead at Gibson Reservoir.

COURTESY USFS





Left, icicles build up on Forest Service backcountry ranger Kraig Lang's mustache on a frigid snow sampling trip in the Bob Marshall Wilderness. Below, Hal Herring and Lang weigh a snow core with a Mount Rose Snow Sampler. COURTESY USFS



snowpack and water equivalent information to the Natural Resources Conservation Service via VHF radio signals, but they're not used in designated wilderness areas — and even SNOTEL sites have to be visited once a winter by somebody, to make sure they are working properly. A new technology called airborne laser altimetry may one day render both SNOTELs and the Mount Rose Snow Sampler as obsolete as goose-quill pens, but for now, manual snow courses in wilderness areas are still monitored by human beings on snowshoes, skis or horseback, three times a season, in late February, March and April. It may be one of the last best jobs for an outdoorsman or woman in the Rocky Mountain West.

The Bob Marshall is one of the first wilderness areas created by the 1964 Wilderness Act, and it holds the snowpack that feeds the Sun River — called the Medicine River by the Blackfeet and other inhabitants pre-European conquest. In 1929, just below the confluence of the North and South Forks of the Sun, the Bureau of Reclamation completed Gibson Dam, which impounds 99,000 acre-feet of this snowmelt water at full pool. Gibson Reservoir made possible a byzantine irrigation system that caused a land rush in the Sun River Valley, and turned the Fairfield Bench, previously an almost uninhabitable plateau, into what is now called “the Malting Barley Capitol of the World,” with over 91,000 acres under irrigation. Fairfield, population about 800, has bucked the Great Plains trends of shrinking populations and shuttered businesses because of the federal water right from Gibson Reservoir — and the snowpack that fills it is protected on public land, in designated wilderness. Had the headwaters of the Sun River ended up in private hands, or been logged and grazed as hard as they were in the late 19th century, human life in this part of Montana would be a far more tenuous proposition.

It is one of the most successful public-private partnerships on the planet. The Bob Marshall Wilderness Complex is renowned for its native cutthroat trout fishing, its elk and mule deer hunting, and its blooming beargrass utopias fraught with the ancient energies of grizzly bear, wolverine, wolf and cougar. But it exists because a century ago, people knew where their water came from, and knew how to make sure it would be around for generations to come.

All we have to do is measure it. We hit the snow course at Sheep Mountain, then drop back down for the long run to Cabin Creek and the hardest day of the trip. The wind is constant and the country is remorselessly burned, mile after mile, the stark blackened snags of fir and lodgepole moaning and popping like a

demented orchestra.

We spend the night at the venerable old Forest Service cabin at Gates Park Guard Station, a woodstove-heated log palace stocked with books and magazines and grape Kool-Aid. Gates' cabin, with its barns for pack stock and artfully rocked-in springs, was built in 1924, and is a remnant of the days when Americans took much more pride in their public lands. The next morning, we boomerang to the last survey site at Wrong Creek, nine miles each way, skiing a mixture of heavy mashed potatoes and suncrust, exhaustion barking close at our heels.

It is just dark when we shuffle back into the Gates cabin. Kraig and Russ Owen transmit the data over the cabin's radio while Bill Avey and I cook a massive supper of spaghetti and canned pears. The battery-operated weather radio begins to squawk of a coming blizzard and extreme cold, and as we eat and soak up the heat from the woodstove, the warnings (“Protect your livestock.” ... “Avoid travel. ...”) become increasingly dire. Settling in, we joke that the next warning will simply say, “Kill yourselves now!” and we cut the radio, put out the lanterns, and fade away to the wind rising and crying at the eaves.

Sometime before dawn, we awaken, the wind unabated, and the cabin is profoundly, almost shockingly, cold. We fire up the woodstove, start cooking all the food we have left, brew huge mugs of tea instead of coffee, knowing that our water bottles will freeze on the trail and there will be a long dry day ahead. Opening the front door is like popping the hatch on a spaceship while traveling between planets; the rush and roar and wind-driven snow, fine as sand, has covered the porch and piled up along the outer wall, and it moves in hallucinatory patterns in the shaft of light cast by the lanterns inside.

We shoulder our packs, then struggle with frozen ski bindings. I zip my jacket to my chin and tighten my hood; when I exhale, my breath rises straight up and frosts my eyelashes together so that for a second, I cannot open my eyes. The ski track we laid in, the one that was going to make our return trip so very easy, has been obliterated by the wind and snow. The sky goes bluish-purple in the east, the line of mountains showing ragged and towering black as in a fairy tale. Russ Owen shoves forward. It's 16 miles to Reclamation Flats, where there is a cabin we can use if we have to. Another six or seven miles beyond that, across the frozen Gibson Reservoir, is the truck we strongly suspect will never start. □

Hal Herring lives with his family in Augusta, Montana.



HEARD AROUND THE WEST | BY BETSY MARSTON

WYOMING

Watch out: Video cameras can record your adventures but might also reveal you to the world as an absolute jerk. After four men from Canada left a boardwalk at Yellowstone National Park to walk out onto the clearly off-limits, ecologically fragile hot spring known as Grand Prismatic, other tourists quickly took videos of the trespassers to park rangers and also provided pictures of the guys' recreational vehicle, reports the *Jackson Hole News&Guide*. In fact, the law-breakers themselves initially posted boastful selfies of their crime on their Facebook page, "High on Life SundayFundayz." The men, all connected with the Vancouver-based clothing company High on Life, have since apologized and promised to donate up to \$5,000 to the park. But if they don't return and face the misdemeanor charges against them, they could be arrested if they try to re-enter the United States. Meanwhile, a video of a woman "petting" a bison near Old Faithful Lodge appeared on Facebook, causing one commenter to note: "I predict there will be a rash of low-flying tourists in Yellowstone this year. Good grief!"

COLORADO

CAT LOVERS SHOULD PROBABLY NOT READ the following tidbit, which we discovered in one of those colorful free publications for tourists, this one called *Travelhost: Four Corners Region*. The Montezuma County Historical Society's one-page offering stood out, because it featured a woman homesteader's vivid recollections of pioneer life in the late 19th century. In a 1934 interview, Carrie Smith Dunham told local historian Anna Florence Robison how she and her husband settled "on the Dolores River," in what is now Montezuma County in the southwestern corner of Colorado. There she became known for her needlework, trading her chokecherry jam to the Indians, who called it "coyote medicine," for buckskin, which she turned into embroidered gloves for cowboys, at a dollar a pair. But one day, after an acquaintance named Jim Moore bought a place down the river with 50 housecats



WYOMING Lunch on the road. MARK GÖCKE

on it, she got the opportunity to sew something different. Moore bought the ranch on condition that the owner would kill all the cats he'd collected. He did so, "and Mr. Moore tanned the 50 hides and brought them to me to make a robe. I ... took a great deal of pains to arrange the cat skins by size and color so that it would look as well as possible," Dunham recalled, "but it wasn't the sort of thing I would personally want to have about." Later on, she learned, a tourist bought the cat-coat for \$50.

ARIZONA

Huge bronze statues of three horses greet visitors to Chino Valley, Arizona, and now, thanks to a contest, they all have names associated with firepower: "Lock" is the horse facing west toward the valley, "Stock" is the one looking east toward the town of Jerome, and "Barrel" is the rearing and kicking steed that greets drivers coming from Prescott. In her essay, contest winner Mammie Timlick wrote that she always thought the statues represented the guardians of the town of 10,000. "If ever there were a more popular device to guard one's home since this town was erected," she said, "it was the firearm, owned and operated by cowboys in pursuit of happiness." So far, no one seems to have mentioned the dubious hospitality of welcoming visitors

at gunpoint, however metaphorically, perhaps because, as one resident put it, "Everyone's pretty pro-firearms here," reports the *Chino Valley Review*.

THE WEST

Summer is coming, and Western resorts are tweaking their tried-and-true tourist activities. Near Ten Sleep, Wyoming, for example, the Red Reflet Ranch is adding classes in roping and ranch skills to its luxury options of a heated pool, zip line and climbing wall, reports dropbox.com.

And Portland, Oregon, now has a restaurant featuring "British Colonial Cuisine," which includes molasses cookies and sausage rolls. *Willamette Week* says the restaurant picked the perfect neighborhood: "North Williams is the

center of the controversy around Portland's gentrification and the pricing out of black residents. It's almost a historical re-enactment!" Chef Sally Krantz says she doesn't understand the backlash: "I'm just trying to make food."

Meanwhile, near Telluride, Colorado, a boarding facility called Wash-N-Watch Dogs just wants to continue doing what it does so well. Co-owner Lane Conrad, who acts as the alpha of her temporary pack of 40, told the *Telluride Daily Planet* that if an animal gets aggressive, she responds swiftly: "The dog needs to understand this is not their house." Without a trace of irony, Conrad adds that she sometimes needs to train her clients as well: "Many owners in Telluride don't understand the idea of boundaries and rules, but they see very quickly this method does work." Her goal, she says, is harmony between dog and owner: "What we're all about is teaching the dog what we want so the dog can succeed, and the dog can make us happy."

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.



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“Critics would rather see us forced to beg private landowners for permission to hunt or hike than allowed to enjoy the freedom to go where we want to go, on the lands that all of us own.”

Brad Brooks, in his essay, "The great public-lands hoax," from *Writers on the Range*, hcn.org/wotr