

High Country News

For people who care about the West

Obama and the West

From public lands to energy, what eight years of the 44th president meant for the region





President Barack Obama walks past a pumpjack before giving a speech on energy independence at an oil and gas production field on federal lands near Maljamar, New Mexico, in the Permian Basin. JASON REED/REUTERS

On the cover

President Barack Obama speaks at the Copper Mountain Solar 1 facility, in Boulder City, Nevada, in March 2012. At the time, the facility was the largest operating photovoltaic plant in the United States.

ETHAN MILLER/GETTY IMAGES



Complete access to subscriber-only content

HCN's website
hcn.org

Digital edition
hcne.ws/digi-4822

Follow us



@highcountrynews

FEATURE

12 Obama and the West

Energy and the climate | Endangered species | Tribes | National monuments | Big ag

CURRENTS

- 5 A temporary victory for Standing Rock Trump's election means the Dakota Access Pipeline is less likely to be permanently blocked
- 6 Will a twice-burned county change its ways? Don't count on wildfires to alter how counties plan development in fire-prone zones
- 7 The Latest: Snow geese and the Berkeley Pit ... again
- 8 Where species will find refuge Nooks and crannies offer safe harbor from a changing climate
- 9 The Latest: Mussel invasion spreads

DEPARTMENTS

- 3 FROM OUR WEBSITE: HCN.ORG
- 4 LETTERS
- 10 THE HCN COMMUNITY Research Fund, Dear Friends
- 22 MARKETPLACE
- 25 WRITERS ON THE RANGE
There's a way to keep independent bookstores alive By Carrie La Seur
- 26 BOOKS
Mesa of Sorrows: A History of the Awat'ovi Massacre by James F. Brooks.
Reviewed by Scott Shumaker
- 27 ESSAY
Right holiday, wrong bird by Michael Baughman
- 28 HEARD AROUND THE WEST By Betsy Marston

Editor's note

Looking backward — and forward

In the dark days of early December, just a month after the election of President-elect Donald Trump, Idaho Conservation League Director Rick Johnson and Idaho Congressman Mike Simpson joined a couple of hundred folks at Boise's City Club for a nostalgic celebration. They were being lauded for the passage of the Boulder-White Clouds Wilderness bill, which they had both worked on for decades and which President Barack Obama had signed the year before.



Simpson, a Republican, delivered an impassioned talk about the enduring value of public lands and wilderness. "His words could have been my words," recalls Johnson.

The Boulder-White Clouds bill was one of only a handful of legislative successes during the Obama administration. Facing a stubbornly hostile Congress, our 44th president resorted time and again to his executive powers to move policy forward. For public lands, that often meant using the Antiquities Act to create new national monuments; Obama, in fact, has created more than any president in history. But it was the determination of Simpson and the conservation community to find common ground that ultimately made a legislative solution possible in conservative Idaho.

It's hard to imagine such bipartisan collaboration now, or in the months ahead. Trump's picks for his transition team and Cabinet, together with a Republican-controlled Congress, likely mean intense battles over lands, energy development and environmental regulations, not to mention immigration, trade and health care. In addition to very public media scraps, there will be epic fights between Trump appointees and longtime federal bureaucrats. It remains unclear how much of Obama's legacy will survive. In this issue, we take a look at Obama's impact on the West, regardless of the future. It's a way of looking back, before we tackle what lies ahead.

Rick Johnson got his start during the Reagan years, when he signed a Sierra Club petition demanding that Reagan dismiss his evangelically pro-development Interior secretary, James Watt. To him, the election sends a clear signal that the conservation community needs to move rapidly from offense to defense. It's a familiar transition for many longtime activists, yet the current level of anxiety is unprecedented.

"It's like you are on a river trip camped at a beach, and you can hear, but not see, the massive rapids below," Johnson says. His advice to colleagues: "If you spend all your time imagining the rocks, then that's exactly where you'll end up tomorrow." Instead, he recommends, get a good night's sleep. Then tackle the rapids by defending the common values that unite Westerners — clean water, clean air, public lands.

And, I would add, look for opportunities to forge unexpected alliances. There will be a lot of different boats navigating the churning waters ahead, and you never know who will end up in the river. Carrying extra oars and life jackets makes sense.

—Paul Larmer, executive director/publisher

Cars head out of the Oceti Sakowin camp in Cannon Ball, North Dakota, after Standing Rock Sioux Chairman David Archambault II and other tribal officials urged protesters to go home. Thousands have left camp.

ANDREW CULLEN



DAPL dispatch

In early December, *High Country News* reporters traveled to North Dakota to find out more about the events unfolding at the Standing Rock Sioux Reservation. In the weeks following, they witnessed a chaotic mix of law enforcement and protesters, unforgiving winter conditions and the celebrations that erupted at the Oceti Sakowin protesters' camp following the Army Corps of Engineers' announcement that a crucial easement for the Dakota Access Pipeline was denied. But they also discovered that the story is far from over. Tribal leaders said that the Army Corps would look for alternative reroutes for the pipeline after environmental review, but the companies behind the pipeline

project say they intend to complete construction as planned. As the inauguration of President-elect Donald Trump — who has selected as his Energy Secretary Rick Perry, who sits on the board of Energy Transfer Partners, the company behind the pipeline—looms, protesters are readying for more battles at Standing Rock. Despite the mass exodus from the camps, some protesters plan to stay through winter. "This victory is not a real victory. It's just the first step," said Jean du Toit, a film producer staying at the Oceti Sakowin camp.

TAY WILES MORE: hcne.ws/Inside-Casino-Camp

READ MORE of our on-the-ground updates and perspective on our website: hcne.ws/DAPL-coverage.

Audio

"It takes a long time for something like that (news) to make its way around the camp, because there's no internet, there's no cellphone connection. ... I was sitting in on a direct action training session when I overheard someone next to me whisper it to someone else: 'Hey, did you hear the news about Army Corps denying the easement?' And I said, 'Wait, what'd you just say?' And then I realized what all the whoops and hollers and celebration sounds had been."

—Reporter Tay Wiles, speaking about her experience in the camp at Standing Rock.

MORE: hcne.ws/inside-DAPL

Trending

Look before you shoot

Several people each year are killed or injured by stray bullets or from guns fired into the air. In Arizona, a young girl's death in 2002 led to the passing of "Shannon's Law," making it illegal to discharge a firearm into the air. Yet in the wilderness, some holdouts think it's still the Wild West and endanger hikers, backpackers and others in the backcountry when they fire their rounds, writes Marjorie "Slim" Woodruff in an opinion piece. But the crux of the issue is not really gun control: "Carrying a gun in the backcountry is not the issue. The irresponsible use of said gun is," she writes. "Gun owners do themselves no favors when hikers, bikers, equestrians, or ATV riders unwittingly become moving targets."

MARJORIE "SLIM" WOODRUFF, OPINION

You say

MIKE LANDER: "Years ago, a friend was accidentally shot by a recreational shooter who assumed his rounds would never travel far enough to hit that guy loading his ATV on his trailer so far away in the distance. Tragic."

GORDY GOWDY:

"Carry one of those canned air horns and sound off if you hear gunfire to let everyone know you are there."

TREVOR PELLERITE:

"Recreational target shooting is NOT a Second Amendment issue, regardless of what the NRA claims to the contrary."

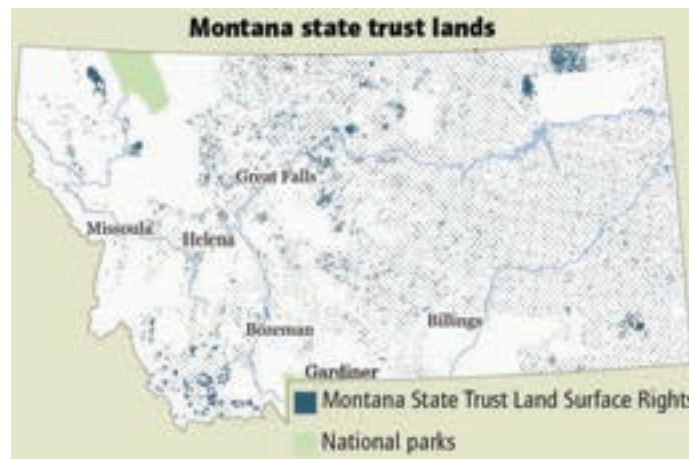
MORE: hcne.ws/rogue-bullets and Facebook.com/highcountrynews

\$4 million Value of parcels still owed to Montana by the federal government, including one in the middle of Glacier National Park and another in Gardiner, and one just outside Yellowstone National Park.

In an era when many schools are underfunded, money might be found in forgotten school trust lands. After more than a century, some Western states are receiving school trust land that was allocated to them when they entered statehood. Homesteaders, Indian reservations or national forests had already claimed the allocations in some designated sections, so the government allowed states so-called "indemnity" selections, which gave them the chance to pick unserved spaces instead. But federal and

state bureaucracy has led to a century of delays. Eleven Western states, plus North and South Dakota, have slogged through the indemnity process with the Bureau of Land Management, and now only five remain unfinished: California, Colorado, Montana, Oregon and Utah. With the end in sight, state land boards signed an agreement with the BLM in 2012 to make resolving the issue a priority; the states began their final steps last year. LAURA LUNDQUIST

MORE: hcne.ws/lands-for-schools



STATETRUSTLANDS.ORG

U.S. Secretary of the Interior Sally Jewell at the National Solar Thermal Test Facility in Bernalillo, New Mexico, in 2015.

SANDIA LABS/FICKR USER



Obama's rush to the end

In their final weeks in office, Obama administration officials are releasing a flurry of rules that could have implications for federal land for decades to come. Many rulings, such as nixing offshore drilling and a minerals withdraw near Yosemite National Park, bolster the president's conservation legacy, but others do not. These rules have been years in the making but face imperiled futures. A Trump administration could not simply erase these actions in most cases — but it could get help from the GOP-controlled Congress to either block them or prevent funding from going to implement them. It also could settle industry lawsuits and ask courts to send the rules back to the agencies to be rewritten in ways that reflect President Trump's pro-industry and fossil fuel-friendly stances.

ELIZABETH SHOGREN AND ANNA V. SMITH

MORE: hcne.ws/last-actions

High Country News

EXECUTIVE DIRECTOR/PUBLISHER
Paul Larmer
MANAGING EDITOR
Brian CalvertSENIOR EDITOR
Jodi PetersonART DIRECTOR
Cindy WehlingDEPUTY EDITOR, DIGITAL
Kate Schimel

ASSOCIATE EDITOR Tay Wiles

ASSISTANT EDITOR
Paige BlankenbuehlerD.C. CORRESPONDENT
Elizabeth ShogrenWRITERS ON THE RANGE
EDITOR Betsy MarstonASSOCIATE DESIGNER
Brooke WarrenCOPY EDITOR
Diane SylvainCONTRIBUTING EDITORS
Cally Carswell, SarahGilman, Ruxandra Guidi,
Glenn Nelson,Michelle Nijhuis,
Jonathan ThompsonCORRESPONDENTS
Krista Langlois, Sarah
Tory, Joshua ZaffosEDITORIAL FELLOW
Lyndsey Gilpin

INTERN Anna V. Smith

DEVELOPMENT DIRECTOR
Laurie MilfordPHILANTHROPY ADVISOR
Alyssa PinkertonDEVELOPMENT ASSISTANT
Christine ListSUBSCRIPTIONS MARKETER
JoAnn KalenakWEB DEVELOPER Eric Strebel
DATABASE/IT ADMINISTRATOR
Alan WellsDIRECTOR OF ENGAGEMENT
Gretchen KingFINANCE MANAGER
Beckie AveraACCOUNTS RECEIVABLE
Jan HoffmanCIRCULATION MANAGER
Tammy YorkCIRCULATION SYSTEMS ADMIN.
Kathy MartinezCIRCULATION
Kati Johnson, Pam Peters,
Doris TeelADVERTISING DIRECTOR
David J. Anderson

GRANTWRITER Janet Reasoner

editor@hcn.org

circulation@hcn.org

development@hcn.org

advertising@hcn.org

syndication@hcn.org

FOUNDER Tom Bell

BOARD OF DIRECTORS

John Belkin, Colo.

Chad Brown, Ore.

Beth Conover, Colo.

Jay Dean, Calif.

Bob Fulkerson, Nev.

Wayne Hare, Colo.

Laura Helmuth, Md.

John Heyneman, Wyo.

Osvel Hinojosa, Mexico

Samaria Jaffe, Calif.

Nicole Lampe, Ore.

Marla Painter, N.M.

Bryan Pollard, Ark.

Raynelle Rino, Calif.

Estee Rivera Murdock, D.C.

Dan Stonington, Wash.

Rick Tallman, Colo.

Luis Torres, N.M.

Andy Wiessner, Colo.

Florence Williams, D.C.

RATIONALIZING COAL PRODUCTION

Reading Elizabeth Shogren's update about the Forest Service's decision to expand the Somerset Coal Mine (near your office in Paonia), I was a bit stunned to see the following quote from USDA Undersecretary Robert Bonnie: "No one is under the belief that we're going to immediately change the energy mix starting today. There's going to be some level of coal for some time to come" ("A loophole in Colorado's Roadless Rule," *HCN*, 12/12/16).

I am a former deputy chief of the Forest Service, and I share Bonnie's belief that the energy mix will not immediately change. But that belief should not lead to a limp, passive federal decision that runs directly counter to the stated goals of the Obama administration and our country's need to stop needlessly adding yet more coal to a bloated supply. The agency's own analysis describes the unwarranted negative economic and environmental consequences that will ensue from mine expansion. Federal agencies have a responsibility to help Somerset and their local employees face the day when its coal no longer serves a public interest. Winking at foreboding realities is not the answer.

A definition of "rationalize" is to "invent plausible explanations," as Bonnie has done here.

Jim Furnish
Rockville, Maryland

A WINDOW INTO OTHER WAYS

Thank you so much for publishing Leath Tonino's "The Anthropological Aesthetic" (*HCN*, 11/28/16). Reading it was akin to looking in the mirror and reclaiming the deepest part of myself, which I had foolishly gotten too far away from. I spent the late '80s and early '90s in a graduate anthropology program at the University of New Mexico, reading reams of ethnographies, such as the one Tonino describes, high up in "the stacks" of Zimmerman Library. Regarded as a musty, dark trysting place for gay couples, among other things, to me it was a temple. I still own every volume of ethnography I ever bought; I still own a copy of George Murdock's data compilation of all of it, *The Human Relations Area Files*. To say these texts saved my life is an understatement; as Tonino so eloquently points out, they provided a whole different way of being on the Earth, of being human. I grew up in a fascist household of sexual, emotional and (to reinforce the other two) physical violence. The upside to Donald Trump's



© 2015 DREW SHENEMAN. ALL RIGHTS RESERVED. TRIBUNE CONTENT AGENCY, LLC

election for me has been that it is forcing me to retrench into what saved me in the first place: anthropology, the sacred feminine, fiction by hitherto unheard of writers of color from places like South Africa, and nature, nature, nature and nature. I recently took a kayak out among the mangroves of Sarasota Bay, Florida. I might as well have been a Miwok on a tule lake, watching osprey dive and ibises pluck the sand.

Kate Niles
Durango, Colorado

TRUMPING UP DEMAND

The recent opinion piece by Jonathan Thompson explains very clearly why killing regulations won't restore energy jobs ("When it comes to energy, Trump's promises are empty," *HCN*, 11/28/16). There must be an increase in demand for oil. Thompson is too good a person to conjure up how Trump will increase demand: He will start a war. This has been done before. George W. Bush did it in 2003. Germany increased demand through military build-up and war in the 1930s. Trump has already set the stage for declaring war on Muslims. Who will be able to oppose that successfully? We'd better start preparing now.

Alan McKnight
Willow, New York

TAKING THE LONG VIEW

I have generally found Peter Friederici's writings erudite, colorful and informative. Now, having just read, and reread, his essay in the Nov. 28 issue, I add the adjective, confusing ("A Place Between," *HCN*, 11/28/16).

He believes, as I do, that human activities are largely responsible for

Earth's current climate changes that continue to grow and result in more and more measurable impacts to our planet. But where he and I seem to part company is his distinction between "natural" events — he writes, "Nature has been an easy out" — and events, like climate change, that he sees as different (unnatural?) because *Homo sapiens* is the fundamental driver. He makes a distinction between "human and natural factors."

I confess to being a geologist who takes the "long view" when it comes to events that have shaped our planet to date. Earth is about 4.5 billion years old; many changes have occurred along this life path to date. *Homo sapiens* is simply one of the most recent additions to this place in galactic space ... an addition that seems destined to destroy itself in geologic short order.

This notion may sound heartless, defeatist and depressing to many people, but I expect that *Homo sapiens* will simply follow the path of so many of Earth's earlier life forms and disappear from the scene. Planet Earth itself will continue on, presumably at least until its sun burns out.

In the interim, we humans can "get out into the mud" as Friederici writes, and try to heal some of the hurts we have caused to Earth with our reckless behavior. But as human population continues to increase, and our abuse of the conditions that make human life on Earth possible escalates, I suspect that getting into the mud will likely be an inadequate Band-Aid on a growing history of self-inflicted wounds. Our newly recognized president-elect and his cohort may even hasten the process.

Wendell A. Duffield
Whidbey Island, Washington

High
Country
News

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. POSTMASTER: Send address changes to High Country News, Box 1090, Paonia, CO 81428. All rights to publication of articles in this issue are reserved. See hcn.org for submission guidelines. Subscriptions to *HCN* are \$37 a year, \$47 for institutions: 800-905-1155 | hcn.org

Printed on
recycled paper.

A temporary victory for Standing Rock

Trump's election means the Dakota Access Pipeline is less likely to be permanently blocked

BY ELIZABETH SHOGREN

In early December, the thousands of protesters camped at the Standing Rock Sioux Reservation celebrated what appeared to be a massive victory. The U.S. Army Corps of Engineers announced that it was withholding permission for an easement required for the \$3.8 billion Dakota Access Pipeline. But the fight is far from over.

The 1,172-mile pipeline, designed to carry Bakken crude oil to refineries in Illinois and beyond, would pass within half a mile of the reservation and underneath Lake Oahe, upon which the tribe relies for drinking water and treaty fishing and hunting rights. “They’re making a stand because they’re afraid of what might happen if there’s a spill, which happens all the time,” says Native American attorney John Echohawk, founder of the Native American Rights Fund.

The “water protectors” at the Oceti Sakowin camp near the reservation responded to the news with resolution as well as joy. John Bigelow, an enrolled Standing Rock Sioux, wore a black beanie reading “Water Is Life” as he told a news conference: “We are not going anywhere.” But later that day, a fierce winter storm hit, and Standing Rock Sioux Chairman Dave Archambault II urged protesters to leave. Thousands did. “While this phase of the struggle relied largely on the protectors at camp, this next stage will be focused on the legal battles,” Archambault said in a statement.

The Standing Rock Sioux’s triumph — delivered in the waning days of the Obama administration — is only temporary. The Army Corps committed to a more robust analysis of the pipeline’s potential environmental impacts, likely halting construction for months or even a couple of years. But President-elect Donald Trump supports the pipeline, in which he held a financial interest until recently. So the future remains murky at best: “What will happen in an anti-science, anti-Indian and pro-fossil fuel administration, we’ll just have to see,” says the tribe’s head lawyer, Jan Hasselman, an Earthjustice attorney.

The protests gained steam in late summer, after the Standing Rock Sioux

filed suit to stop pipeline construction, claiming that the government failed to adequately consult with the tribe and that the Corps’ expedited environmental review was not thorough enough. After the tribe asked for a preliminary injunction to stall construction, a federal judge in September ruled that the Corps had met its obligation to consult with it, saying that tribal representatives repeatedly failed to attend meetings. In response to protests and political pressure, however, the Department of the Army, the Justice Department and the Department of the Interior stepped in to block the project while the Corps reconsidered.

Now, three months later, the Corps has

judge to intervene, claiming that an easement is unnecessary because the government already gave permission for the pipeline to cross the lake. In its court filing, Dakota Access calls the new requirement for a lengthy review process “part of a transparent capitulation to political pressure.”

The judge has refused to rule immediately, saying he’ll consider the company’s request early next year. Tribal lawyers seem confident that it will fail. The Corps has admitted that it withheld several key documents from the tribe, which considered alternative routes and environmental justice concerns, and also weighed the risk of spills and the possible damage they could cause. Legal experts see this as a glaring example of the Corps’ failure to meaningfully consult with the tribe. The agency recently agreed to release the reports in redacted form.

The Standing Rock Sioux and their supporters hailed the Obama administration’s decision to require further review, even though it fell short of what they wanted. “It buys time in this fight,”



Thousands of people camped at Oceti Sakowin camp in Cannon Ball, North Dakota, a few days after the Army Corps of Engineers announced that it would deny the easement to build the pipeline under Lake Oahe. A few hundred are prepared to stay for the winter.

ANDREW CULLEN

decided that a full environmental impact statement is necessary. Experts say it will be difficult for the Trump administration to evade this time-consuming requirement, which entails extensive study, tribal consultation and public input. Failure to conduct it would probably be seen by a judge as “arbitrary and capricious,” says Kristen Carpenter, Oneida Indian Nation visiting professor of law at Harvard Law School.

Trump, however, told *Fox News Sunday* in mid-December that he’d solve the impasse “very quickly” after taking office, though he didn’t explain how. Dakota Access LLC, the pipeline company, asked a

says Raúl Grijalva, D-Ariz., the ranking Democrat of the House Natural Resources Committee.

Grijalva visited Standing Rock in September and says he was impressed: The protesters include representatives of many tribes and environmental and civil rights activists from around the country and abroad, strongly united and prepared for the attacks on the environment, poor communities and tribes that they expect to see once Trump takes office. “Those fights are not going away; they’re going to intensify,” he says, adding that next time, it won’t take months for protests to start: “That would happen so quickly.” □

Correspondent Elizabeth Shogren writes *HCN’s* DC Dispatches from Washington. [@ShogrenE](#). Contributing editor Tay Wiles also provided reporting.

Will a twice-burned county change its ways?

Don't count on wildfires to alter how counties plan development in fire-prone zones

BY MARSHALL SWEARINGEN

► Anita Andre sifts through the ashes of her garage, which was burned down by the Roaring Lion Fire in Ravalli County, Montana. Fortunately her house, set in 30 acres of ponderosa pine forest, survived, perhaps due to the green grass surrounding it.

PERRY BACKUS/RAVALLI
REPUBLIC

Minutes after Jeff Burrows noticed a puff of smoke rising from Roaring Lion Canyon, on Sunday afternoon, July 31, his dispatch radio crackled. The volunteer firefighter raced to the station in Hamilton, Montana, suited up, and awaited orders as fire chiefs scouted the blaze on the Bitterroot National Forest. By the time he sped up Roaring Lion Road toward his home and hopped off the fire truck to help his wife and two kids evacuate, the fire, fueled by tinder-dry conditions and 30-plus mph winds, had already blown up.

"I've never seen fire move that fast before," Burrows says. His house was spared, but others were not: In its first hours, the Roaring Lion Fire destroyed 16 homes and dozens of outbuildings. Burrows worked the fireline until 1 a.m., hauling hose through smoke so thick it obscured all light except that of flame and falling embers. The next morning, as Forest Service hotshot crews, water-dumping helicopters and bulldozers attacked the flames, he went back, exhausted, to his regular job as a Ravalli County commissioner.

Roaring Lion isn't the worst wildfire to strike Ravalli County, where the small towns and scattered homes of the Bitterroot Valley abut the national forest boundary. In 2000, a 356,000-acre fire complex — the nation's biggest during an exceptionally destructive wildfire season

— charred 70 homes here. The damage helped spur county commissioners and others to adopt some measures to reduce communities' wildfire risk, including tree-thinning projects that later helped save homes from the Roaring Lion Fire.

But from the time the smoke cleared in 2000 to the eruption of this July's inferno — a period during which Ravalli County residents were evacuated at least a half-dozen times because of major blazes — local officials have largely resisted regulatory tools, including subdivision requirements and zoning, that could steer development out of fire-prone areas and make existing properties more fire-resistant. In 2000, for example, the county planning board drafted detailed subdivision standards to reduce wildfire risk, but commissioners refused to adopt them on ideological grounds. As retired forest supervisor Sonny LaSalle, who was then on the planning board, says, "The private-property rights issue drives a lot of the politics in this county."

Ravalli County isn't alone in its unwillingness to rein in development in the increasingly flammable wildland-urban interface (or WUI, pronounced WOO-ee). According to researchers at Headwaters Economics, a Bozeman, Montana-based nonprofit, most Western counties, whatever their politics, generally allow risky home construction. This, in turn, puts a growing burden on the U.S. Forest Service,

which bears the brunt of the region's fire-fighting costs. In 2015, the agency spent more than half its \$6.5 billion budget on wildfire-related activities, largely because of pressure to defend private property.

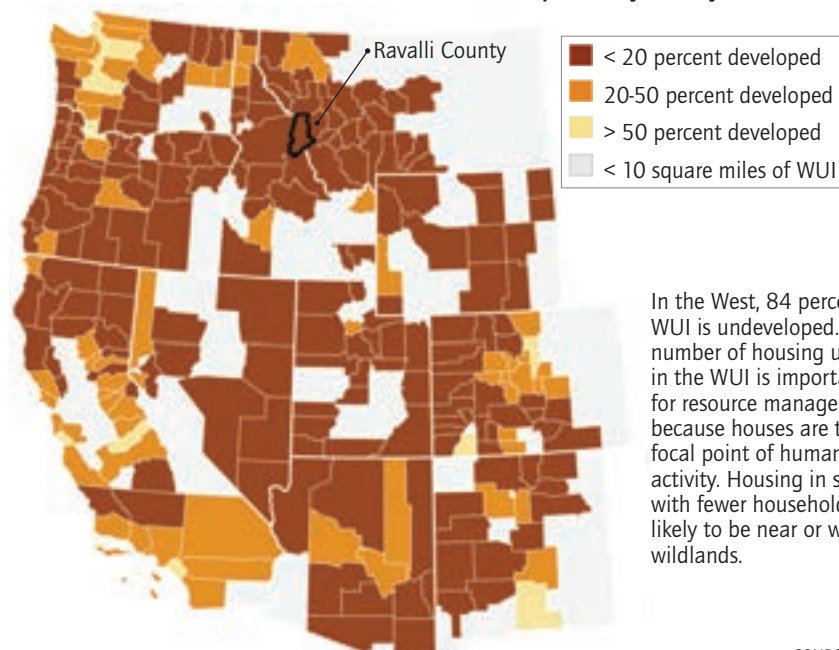
Counties and other local governments "are absolutely central" to containing those costs, says Ray Rasker, Headwaters executive director. But "it's very rare, at the end of a fire, that a community concludes that it should have better land-use planning."

Will the Roaring Lion Fire change anything? "This one struck really close to home," says Burrows. "I do hope we're going to learn from these losses."

In the aftermath of the 2000 fire season, Western counties were pushed to get more aggressive about fireproofing their communities. Federal lands agencies created a National Fire Plan to better coordinate wildfire efforts with state and local governments. The plan spurred Bitter Root Resource Conservation and Development, a Hamilton-based nonprofit, to begin assisting landowners in Ravalli and two neighboring counties to thin trees and other vegetation on their properties. Nearly 650 Ravalli landowners have since done so.

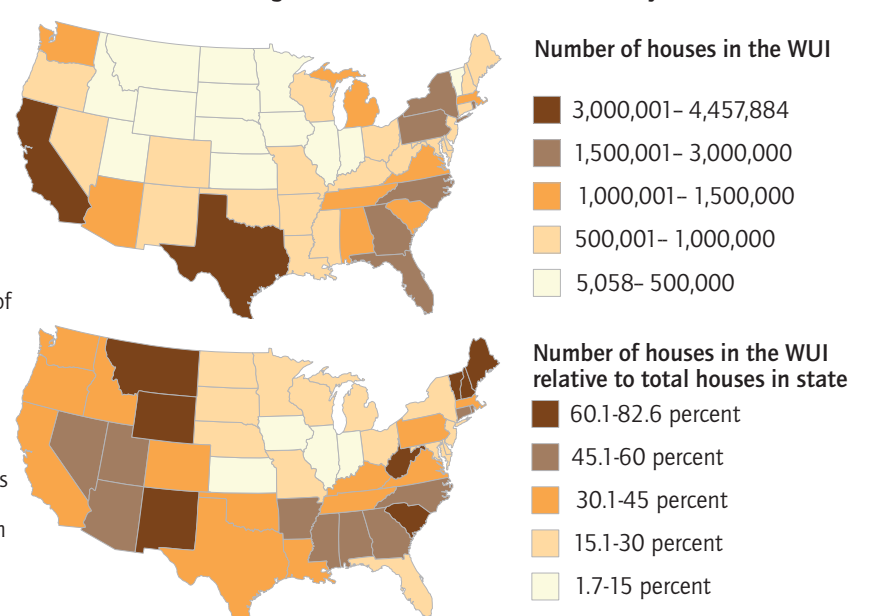
Then, following another destructive fire season in 2002, Congress passed the Healthy Forests Restoration Act of 2003, which among other things incentivized local governments to adopt "community wildfire protection plans." When Bitter Root RC&D brought together federal, state and county officials to draft such a plan

Wildland-Urban Interface development by county



In the West, 84 percent of WUI is undeveloped. The number of housing units in the WUI is important for resource managers because houses are the focal point of human activity. Housing in states with fewer households is likely to be near or within wildlands.

Housing in the Wildland-Urban Interface by state



SOURCE: HEADWATERS ECONOMICS AND THE 2010 WILDLAND-URBAN INTERFACE OF THE CONTERMINOUS UNITED STATES, USDA, USFS



for Ravalli County, county commissioners endorsed many local initiatives, including prioritizing thinning projects on certain private lands. The plan even succeeded in getting the county to mention “defensible space” — created by clearing vegetation away from homes — in its comprehensive planning document, or growth policy. But it didn’t lead to any regulations discouraging further development in the WUI.

The county appeared ready to get more aggressive in 2007, when Ravalli-area legislators helped pass a state bill requiring all Montana counties to consider wildfire risk in their growth policies and subdivision regulations. Meanwhile, pro-planning leaders, concerned about Ravalli County’s rapid population growth — from 1990 to 2010 it grew 60 percent, to a population of 40,000 — proposed county-wide zoning that could have been a powerful tool for regulating development in the WUI. But in 2008, the anti-planning forces mounted a citizen ballot initiative to entirely repeal the county’s growth policy, a prerequisite for zoning under Montana law. And they won.

Another state bill, in 2009, required counties to map their WUI areas. But even creating a map proved controversial. Bitter Root RC&D partnered with the county’s 13 rural fire districts, the county sheriff and other local officials, plus GIS and fire behavior experts, to produce a detailed map of Ravalli County’s WUI. But in 2011, under pressure from residents afraid that the map would lead to higher insurance premiums or more regulations, the county commission refused to adopt it.

When Byron Bonney, a retired Forest Service firefighter who has led Bitter Root RC&D’s wildfire work since 2001, complained to the state that the county lacked a decent WUI map, Montana officials backed the county, he says. “They didn’t

want the controversy.”

It’s unlikely that better maps or stronger regulations would have spared many homes from Roaring Lion’s wrath. Most were built in the 1980s or before, so even using zoning to make the WUI off-limits to development wouldn’t have helped. According to Ravalli County planning director Terry Nelson, more recent housing development, both in the Roaring Lion area and across the county, has occurred mostly on existing lots or on parcels created with exemptions from Ravalli’s subdivision regulations, which require on-site water storage, firefighter access and defensible space.

But a thinning and logging project called the Westside Collaborative Vegetation Management Project might have made a major difference if it had been completed prior to the July blowup. The project was scheduled to treat national forest along roughly six miles of the WUI in the Roaring Lion area beginning this fall. Local environmentalists and other residents raised concerns about road-building and truck traffic, largely because the project includes a commercial timber sale intended to help pay for unprofitable hand-thinning. Commissioners, including Burrows, who was elected in 2012, cite the project’s years-long approval process as evidence that the Forest Service is unacceptably burdened with regulations. But they also objected because the project would decommission some forest roads they’d like to see remain open.

For Burrows, the main lesson of Roaring Lion is that more trees should be cut on public land to reduce its flammability — a popular stance in a county with a dying timber industry. Other commissioners agree. But the Forest Service hasn’t been

idle. In addition to monitoring or suppressing more than 200 sizeable wildfires in and around Ravalli County since 2000, it has logged, thinned or performed prescribed burns on more than 120,000 acres of public land, arguably treating the majority of the WUI yet uncharred by wildfire.

Yet the commissioners propose no reciprocal county action on private lands, other than encouraging tree-thinning and fire-resistant construction by willing landowners. “Our citizens have been very clear that they don’t want more regulation,” says Greg Chilcott, a Ravalli County commissioner who was first elected in 2002.

For Rasker, whose Headwaters Economics has partnered with several Western cities and counties, including nearby Missoula County, to evaluate and plan for wildfire risk, the behavior of local governments like Ravalli County reflects out-of-kilter economic incentives. What motivates most counties “is their budgets,” he says. Counties reap property taxes when they permit development, yet pay little of the cost to defend homes from wildfire. The Roaring Lion Fire took a toll on Burrows and other volunteer first-responders, but Ravalli County will pay essentially none of the \$11 million cost associated with the weeks-long containment effort that followed. (According to a preliminary agreement among the firefighting entities involved, the Forest Service will foot at least 75 percent of the bill; the state is eligible for federal disaster funds to cover much of the remainder.)

Counties like Ravalli — whose total annual budget is \$46 million — would almost certainly change their view toward fire-prone development if they had to pay a major share of those costs, or if they were financially rewarded for restricting that kind of development, Rasker says. “It’s not until that happens that we’ll see any change.”

Major reform is unlikely to occur anytime soon. But that didn’t stop Bonney from contemplating his next visit with Ravalli commissioners as he surveyed the wreckage of the 8,500-acre Roaring Lion Fire, still smoldering on high slopes in mid-August. The fire destroyed seven homes that had received thinning treatment through Bitter Root RC&D’s grant program. But others survived despite no initial aid from firefighters, owing to fire-resistant building methods and the vegetation treatments, plus a bit of luck, Bonney says.

He’d like commissioners to learn from that, and to seriously consider updating subdivision and building material requirements. Roughly 80 percent of Ravalli County’s WUI is still undeveloped, so new policies could make a major difference.

Will Burrows and other county officials act on his proposals? “Who knows?” Bonney says. “Those things have been on the table for a long time.” □

THE LATEST

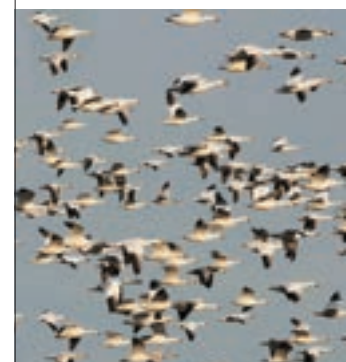
Backstory

From 1955 to 1982, miners extracted millions of tons of copper ore from the Berkeley Pit in Butte, Montana. Once operations ceased, the open pit filled with toxic water. **In November 1995, 342 migrating snow geese landed on the 900-foot-deep lake, now a Superfund site. Days later, they were found dead,** their tracheas burned by acidic pollutants such as cadmium, lead and arsenic. (“Did toxic stew cook the goose?” *HCN*, 12/11/95). Mine managers then implemented a hazing program to deter waterfowl from landing.

Followup

In early December, an estimated **10,000 snow geese landed in the Berkeley Pit to wait out a winter storm. Mine company crews, overwhelmed, could not chase them off, and thousands of birds perished.** A burgeoning snow geese population and delayed migration due to unusually warm weather may have contributed to the incident. The mine companies could be fined if the Environmental Protection Agency determines they were negligent.

LYNDSY GILPIN



STEVEN KERSTING/CC FLICKR



Where species will find refuge

Nooks and crannies offer safe harbor from a changing climate

BY JULIA ROSEN

An American pika runs toward one of its winter food caches with a mouthful of plants, above. Pika don't tolerate heat very well, but are able to find cool places of refuge in the nooks and crannies of talus fields. Connie Millar, opposite page, an ecologist with the Forest Service's Pacific Southwest Research Station, hangs thermometers in trees in the Sweetwater Mountains of California to monitor air temperature to determine if climate refugia exist in the area.

TOM & PAT LEESON,
SCOTTY STRACHAN

Connie Millar picks her way across a boulder field in California's Lee Vining Canyon. The ramparts of the High Sierra, which mark the east entrance of Yosemite National Park, claw at the western horizon. Across the valley, RVs grumble down the curves of Tioga Pass Road. But Millar is listening for something else on this autumn day: pika.

American pikas are endearing, pocket-sized mammals with prodigious ears and a distinctive high-pitched call. But they can't tolerate heat — a trait that has made the pika into something of a climate change icon. Even President Obama has noted that warming has pushed the creatures uphill in search of cooler conditions.

But Millar, an athletic, strawberry-blond ecologist with the Forest Service's Pacific Southwest Research Station, says there's more to the story. While some studies have reported problems for pikas in the Great Basin, Millar and others have found that many populations in the Sierra Nevada and Rocky Mountains have held their ground, a feat she attributes to the unique qualities of the talus fields they call home.

For the past 10 years, Millar and her

colleagues have monitored temperatures in boulder piles like those in Lee Vining Canyon. At the hottest times of day, there can be a 12 degree Fahrenheit difference between the rocks' surface and the shaded chambers between them. Those chambers often retain ice and stay cooler than the average air temperature, the metric researchers usually use to predict future conditions.

These differences matter here, just as they do for people living in places like Phoenix. "If we were out on the tarmac, we would probably all die," Millar says. "But we have air-conditioned offices and buildings, so we just go inside." The chambers in talus offer pikas a similar option, and could help the critters survive climate change — at least for a while.

Places like talus fields, where local climate conditions defy regional trends, are called refugia, and they can be found in the nooks and crannies of almost every landscape. But only in recent years have scientists and managers begun to recognize their importance for climate adaptation. For as long as these pockets remain sheltered, they could offer much-needed protection for threatened plants and animals — and a rare glimmer of hope for the people trying to save them.

Like many ecologists, Millar first came across the concept of refugia while trying to make sense of the sometimes-perplexing places species exist today. Why, for instance, do limber pines grow in the mountains of Nevada, far from the tree's Northern Rocky Mountain stronghold? And why does the Wyoming toad live only in the Laramie Basin, 500 miles south of its close relative, the Canadian toad?

The answer, researchers discovered, is that these populations are most likely leftovers from the last ice age, which ended roughly 12,000 years ago. As the planet warmed, many cold-adapted species retreated to higher latitudes and elevations — except in refugia, where local conditions allowed them to persist. Because these places remained colder or wetter or foggy than surrounding areas, they shielded species from what had become an inhospitable climate.

Scientists hope that refugia will play a similar role in the future, buying time while managers come up with long-term climate adaptation plans, or until greenhouse gas emissions drop. But first, researchers must figure out how refugia form and where they occur.

One of the most common mechanisms for producing refugia in mountainous terrain is cold-air pooling, which happens when cool, dense air flows downhill on calm nights and collects on valley floors. In 2008, Jessica Lundquist, a hydrologist at the University of Washington, developed a way to pick out which drainages might host cold-air pools. She and her students have applied the method to entire



mountain ranges, including the Sierra Nevada, providing ecologists with a critical resource: maps of likely refugia.

In other cases, the ability to hold onto moisture is all it takes to create refugia. Researchers working in the Klamath-Siskiyou Mountains, an area of exceptional biodiversity on the California-Oregon border, have identified north-facing slopes, old-growth forests and river valleys as places that retain more water. In the Mojave Desert, climate models suggest that entire mountain ranges could serve as refugia because they squeeze more precipitation out of the dry air.

Complex landscapes produce a wide range of microclimates, but they exist everywhere — even in talus fields and frost pockets that occur in farmers' fields, Lundquist says. "You can look at almost any scale and see these setting up."

As scientists' understanding of refugia grows, land managers must decide how to use them. The National Park Service and Bureau of Land Management now recognize refugia as important climate adaptation tools, but few management plans include concrete ways to use them, says Pat Comer, chief ecologist at the conservation nonprofit NatureServe.

One approach simply involves remembering they exist when planning for the future. For instance, managers have long flirted with the idea of reintroducing wolverines to the Sierras. But scientists worried that the scrappy carnivores, which were eradicated in the early 20th century, would not survive in a warmer future. Wolverines den in snowdrifts, and declining snowpacks could make it hard for them to raise kits.

So in 2011, Lundquist's team partnered with researchers at the U.S. Geological Survey to see how local climate processes, such as cold-air pooling, alter future snow forecasts, and thus, the outlook for wolver-

ines. The results suggested that wolverines might be able to find more spring snow in previously unrecognized mid-elevation refugia. "They didn't need the whole mountain range to be that cold," Lundquist says. "They just needed a spot for their den."

Managers could also focus existing conservation efforts on refugia, says Toni Lyn Morelli, a research ecologist at the USGS's Northeast Climate Science Center in Amherst, Massachusetts, and lead author of a new study on managing refugia. Investing in places that naturally resist warming would allow managers to target some of the other stresses that organisms experience, Morelli says.

For example, managers could help cold-adapted fish like bull trout by protecting slow-warming mountain streams on public lands that face threats from logging. Scientists working in the Klamath-Siskiyou region have made similar arguments for shielding vulnerable refugia from grazing and mining.

Those who manage protected areas could also make the most of their safe-harbor qualities. Devils Postpile National Monument, 20 miles south of Lee Vining Canyon, boasts a deep valley with sub-alpine meadows where frequent cold-air pooling and spring-fed creeks keep temperatures low. "We are kind of like a poster child," says Deanna Dulen, the park's superintendent. Dulen sees an opportunity to protect valuable meadow habitat, which is under threat from climate change, by limiting visitor impacts and removing encroaching conifers.

Vulnerable species could even be relocated to healthy refugia like Devils Postpile. Artificial refugia could be developed, as well: Lundquist's group's recent research shows that small forest clearings, created as part of routine tree thinning, can boost snow cover. A hole in the forest canopy about 100 feet wide allows more snow to pile up, and the shade of the surrounding

trees prevents it from melting. "You've just created a nice big snow trap," she says.

Her team has found that in the Cascade Mountains, the snow in such clearings lasts between two weeks and two months longer, supplying soil moisture and stream flow through the spring and summer. It might seem like a small way to address the daunting problems of climate change, Lundquist says, but "this is something you can do at a scale you can control."

After a few minutes of scrambling over the rubble, Millar hears a pika — a long squeak like the sound made by a squished dog toy. The call comes from the bottom of the talus field, where air circulation inside the rock pile creates the coolest conditions. A lush meadow that provides food for the pika sprawls below, fed by moisture trapped under the talus. The idyllic scene illustrates why Millar think the animals should be emblems of resilience — not vulnerability.

But refugia alone can't save imperiled species. Habitat fragmentation makes it hard for many plants and animals to reach places that could meet their needs. And species will need so-called climate corridors, which allow migration to higher latitudes and elevations as temperatures rise, Comer says.

Refugia also won't last forever. If warming continues unabated, these places will eventually grow too hot, or too dry. Michael Dettinger, a hydrologist with the USGS in Carson City, Nevada, sees three possibilities: Refugia will resist warming, they will reflect warming, or they will disappear altogether.

Dettinger has studied long-term temperature records from two spots that experience cold-air pooling but have followed different trajectories in recent decades: the Lake Tahoe Basin and the nearby Truckee River drainage in California. Stubbornly resistant, Tahoe hasn't warmed at all, while the Truckee has heated up at about the same rate as its surroundings, reflecting the regional trend.

For now, both places remain unusually cool for their elevation, but that could change. New weather patterns might disrupt the area's cold-air pooling, for example, by bringing more wind. "The nightmare scenario is that the microclimate that makes the refugia work could dissipate in a way that actually made it the fastest-warming thing in the area," Dettinger says.

Still, Millar thinks focusing on refugia is better than doing nothing. Balanced on a jumble of jagged rocks, she surveys the valley — a place she has visited every summer for more than a decade and which she hopes will host pikas for at least a few decades more.

"We have to work with interim strategies," she says, "because what else can we do?" □

THE LATEST

Backstory

Invasive quagga and zebra mussels appeared in the 1980s from the Black Sea, spreading through the Great Lakes before jumping to Nevada's Lake Mead in 2007. **The tiny mussels multiply rapidly, clogging water intakes and disrupting food webs.** With no native predators, they are extremely hard to vanquish. Their microscopic larvae hitch rides to new bodies of water on boats and waders ("Wish you weren't here," *HCN*, 3/5/07).

Followup

The mussels have now reached Montana, after infesting Nevada, Utah, California, Colorado and Arizona. State labs analyze samples from hundreds of water bodies annually for the presence of the mussels, and on Nov. 8, they found larvae in Tiber and Canyon Ferry reservoirs. Glacier National Park and the Blackfeet Nation have banned any boating activity for now, though Montana's cold winters may slow their spread. "This is going to be absolutely catastrophic to the economy and the environment," said state Rep. Jim Keane, D-Butte, in the *Flathead Beacon*.

ANNA V. SMITH



Zebra mussels adhered to a boat propeller.

TOM BRITT/CC FLICKR

RESEARCH FUND

Thank you, Research Fund donors, from Cocoa to Paradise

Since 1971, reader contributions to the Research Fund have made it possible for *HCN* to investigate and report on important issues that are unique to the American West. Your tax-deductible gift directly funds thought-provoking, independent journalism.

Thank you for supporting our hardworking journalists.

IN HONOR OF TOM BELL

Florence Shepard | Salt Lake City, UT

IN MEMORY OF TOM BELL

Frannie Huff | Jackson, WY

PHILANTHROPIST

Tom & Tamia Anderson | Berkeley, CA

STEWARD

CCS Family Fund - Topeka Community Foundation

Leo O. Harris & Ann Simms | Albuquerque, NM

John & Kathy Matter | Cedar Crest, NM

John P. McBride, The Aspen Business Center | Aspen, CO

BENEFACTOR

In honor of Arthur Smidinger | Scarborough, NY

Bill Alldredge | Thermopolis, WY

Denny Arter & Tim Martin | Salida, CO

Michael & Diane Dennis | Round Hill, VA

Michael Kenney & Anna Moscicki | Dubois, WY

Ray Kogovsek | Pueblo, CO

Carlie Lines & B.C. Rimbeaux | Santa Fe, NM

SPONSOR

Anonymous (3)

In memory of Sheldon O. Clark | Phoenix, AZ

Joe & Barbara Andrade | Salt Lake City, UT

Randall Backe | Wausau, WI

Steve Fast | Brooktondale, NY

Timothy J. Flood | Phoenix, AZ

Jack & Janet Godard | Whychus, OR

David Graber | Three Rivers, CA

Gerald Groenewold & Connie Triplett | Grand Forks, ND

Nick Hazelbaker | Harpster, ID

James Higgins | Toluca Lake, CA

Randy Jahren | Bainbridge Island, WA

Dennis Johnson | Idaho Springs, CO

David & Barbara Larson | Santa Fe, NM

Richard Lyon | Bozeman, MT

Tam & Barbara Moore | Medford, OR

Glenn Yocum & Emelie Olson | Taos, NM

Heidi & Clifton Youmans | Helena, MT

PATRON

Anonymous (4)

Long Live Tom Bell's Legacy!
Keep up the good fight!

In memory of Vince & Dorothy Greco | Grand Junction, CO

In memory of Donald H. Richter | Anchorage, AK

In memory of Ron Selden | Glasgow, MT

In memory of David J. Weber | Dallas, TX

Jane Anderson | Berthoud, CO

William Anklam | Santa Rosa, CA

Talitha J. Arnold | Santa Fe, NM

Tammy Ayer | Yakima, WA

Ezra & Liana Bayles | Taos, NM

Dick Benoit | Reno, NV

Karl & Kathleen Blankenship | Seven Valleys, PA

Ann & Richard Boelter | Laramie, WY

Betsey Burdett | Ketchikan, AK

Lynda M. Caine | Bozeman, MT

James Cavin | Seattle, WA

James S. Condit | Basalt, CO

John H. Conley | Port Townsend, WA

Gladys Connolly | Denver, CO

Eric Coons | Mesa, AZ

Sam Craig, NorCal Guide Service | Browns Valley, CA

Anna Darden | Healdsburg, CA

Ken Darrow | Woodland Park, CO



Inspiration Point, Channel Islands National Park, California. QT LUONG

Winfield Decker | Crofton, MD

Tom Delate | Centennial, CO

Douglas Dunn | Bisbee, AZ

Ingrid & Gerhard Fischer | Boulder, CO

Ann Galt | Salt Lake City, UT

Ken Gamauf | Boulder, CO

Glen Greisz | Port Townsend, WA

John Harbuck | Sandpoint, ID

Moss Henry | Santa Rosa, CA

Will Hiatt | Denver, CO

Peter Hodgkin | Los Osos, CA

Julian & Diane Holt | Sacramento, CA

Bob & Joanne Hungate | Tucson, AZ

Alan & Polly Hyde | Tubac, AZ

Rudolph L. Johnson | Las Vegas, NV

Caroline Kauffman | Lafayette, CO

Deb Keammerer, The Restoration Group | Boulder, CO

Dianna Klineburger | Lynnwood, WA

Greg Lower | Santa Fe, NM

Caroline Lowmsa | Denver, CO

Susan Lund | Montrose, CO

Piero Martinucci | Berkeley, CA

Margaret Matter | Tucson, AZ

Linda Mayo & William Doelle | Tucson, AZ

Robert & Debra McGimsey | Eagle River, AK

Marcie & Robert Musser Advised Fund at the Aspen Community Foundation | Aspen, CO

Ian & Amanda Nelson | Mead, CO

Paul O'Rourke-Babb | Chico, CA

Diana Pilson & Rick Schneider | Lincoln, NE

Ernie Pintor | Riverside, CA

Jack & Rachel Potter | Columbia Falls, MT

Nicholas Psarakis | Colorado Springs, CO

Andrea Ray | Boulder, CO

Dorothy & Peter Raymond | Loveland, CO

Marcia Rider | Santa Cruz, CA

Betty Roger | Aurora, CO

David & Bette Seeland | Lakewood, CO

Kirk Sherrill | Fort Collins, CO

Gregory Smith | Spokane, WA

Patricia Smith | Berkeley, CA

Stephen J. Spaulding | Cascade, CO

Sarah Teofanov & Tory Larsen | Farmington, NM

Mikki Teresin | Billings, MT

Pamela Timmerman | Chimayo, NM

Peter VonChristierson | Port Townsend, WA

Eliza Walbridge | Blue Bell, PA

Charles G. Wiley | Santa Rosa, NM

Steve Williams | Arvada, CO

FRIEND

Anonymous (13)

In honor of Dr. J.A. Merchant, Paonia native, 1898 | Iowa City, IA

In honor of the best hiking dog, "Mustang Sally" Salt Lake City, UT

In memory of Spike Baker | Emmett, ID

In memory of Penny P. Binns | Edenton, NC

In memory of Warren Bourdette

In memory of Colin Brown | Westerly, RI

In memory of Camille Butler Bond | Austin, TX

In memory of Thomas Groarke | Yankee Hill, CA

Larry M. Adams | Syracuse, UT

Darlene Allen | Portland, OR

Ray & Chris Arthun | Franktown, CO

Henry L. Atkins | Houston, TX

William A. Averill | Corrales, NM

Bill & Rye Bailey | Albuquerque, NM

Martha H. Balph | Millville, UT

Alan R. Batten | Fairbanks, AK

Pete Bengeyfield | Dillon, MT

Bobbe Besold | Santa Fe, NM

E.D. Bond | Charlotte, NC

Paul A. Brallier | Bellevue, WA

Christopher Bratt | Applegate, OR

Mary Bresnan | Long Beach, CA

Jeremy M. Brown | Tijeras, NM

Don Campbell | Grand Junction, CO

Robert Campbell & Marsha Jorgenson | Lewiston, ID

Todd Carmichael | David City, NE

Elizabeth Caughlin | Boise, ID

Norma Clark | Coupeville, WA

Anne B. Collins | Denver, CO

Lynda Daley | Fresno, CA

Norman DeWeaver | Casa Grande, AZ

Lorna P. Dittmer | Friday Harbor, WA

Judy Dixon | Lewistown, MT

Harold Duncan | Palmdale, CA

Jeffrey Duplessis | Ammon, ID

YES! I care about the West!

☐ \$25 Friend

☐ \$75 Patron

☐ \$150 Sponsor

☐ \$250 Benefactor

☐ \$500 Guarantor

☐ \$1,000 Steward

☐ \$2,500 Philanthropist

☐ \$5,000 Publisher's Circle

☐ \$10,000 & up Independent Media Guardian

Amount of gift \$ _____ ☐ Make this amount recurring

☐ Here's my check (or voided check/1st month's gift for recurring gifts)

☐ Charge my credit card \$12/month minimum

Card # _____ Exp. date _____

Name on card _____

Billing Address _____

City/State/ZIP _____

TREASURED LANDS

QT Luong, foreword by Dayton Duncan
456 pages, hardcover: \$65; electronic version available;
see TreasuredLandsBook.com
Cameron + Company, 2016

Tuan (QT) Luong has been down many pothole-filled roads during his 20-year quest to photograph every national park in the country. Along the way, he survived a mosquito attack, snapped photos with a cholla cactus barbed into his backside, and narrowly avoided being stranded by flash floods.

The perseverance paid off: Luong's *Treasured Lands* — at 456 pages and nearly 7 ½ pounds, with more than 500 photographs and 60 maps — is the most monumental literary achievement during a year that brimmed with words and pictures dedicated to the National Park Service's centennial.

Luong's compositions, many taken with a 5x7 large-format camera, are mesmerizing: Witness the full-page picture of a hiker looking down into Yosemite Valley from Taft Point at sunset. But the book is more than a visual feast, because of its geographic completeness and an attention to detail that only someone who has lived and breathed the parks for a long time could provide. GLENN NELSON

George Early | San Diego, CA
Darwin Eggli | Salt Lake City, UT
James & Gayle Eidson | Big Sky, MT
Richard Engelmann | Boulder, CO
John & Jodi Ferner | Tucson, AZ
James Flaherty | Huntington Beach, CA
Jay Ford | Rawlins, WY
Deborah Gaj | Coaldale, CO
John Gamertsfelder | Las Vegas, NM
Andrew Giffin | Paonia, CO
Nathan Gilbert | Salt Lake City, UT
Erin Goss | Richmond Heights, MO
Martin Gothberg | Santa Clara, CA
Darcy Gray & Tom Bihn | Burién, WA
Gary & Faith Gregor | Denver, CO
Julia Guarino | Gallup, NM
Robert B. Haight | Riverton, WY
Olga Harbour | Tucson, AZ
Thomas Harding | Whitefish, MT
Russell & Billie Hart | Chattaroy, WA
Rick Helms | Fort Shaw, MT
Jacqueline & Richard Holmes | Occidental, CA
Deb & Tom Intlekofer | Loveland, CO
Donald Ivy | Coos Bay, OR
Bob & Pam Jacobel | Northfield, MN
Gina Johnson | Denver, CO
Cory & Linda King | Carson City, NV
Karl Kistner | Las Vegas, NV
Dean Kurath | Winthrop, WA
Frank Landis | Erie, CO
Richard Larson | Boulder, CO
Richard V. Laursen | Carmichael, CA
Thomas Ligon | Loveland, CO
Susan Localio | Port Townsend, WA
Brian Loughman | Grand Junction, CO
John Machen | Boulder, CO
B. Handy Marchello | Bismarck, ND
Scott McKay | Nephi, UT
Shawn Miller | Escalante, UT
Chris Moore & Ann Little | Greeley, CO
Sean Morrison | Washington, DC
Robert Mugno | Loveland, CO
Robert & Sue Naymik | Medford, OR
Pat Noll | Glencoe, CA
Liz O'Rourke | Arvada, CO

Matt Overeem | Glenview, IL
Don & Amy Owen | Round Hill, VA
Kerry R. Page | Boise, ID
Joanne Pflipsen | Seattle, WA
Glen Phelps | Gypsum, CO
Sandi Piper | Aztec, NM
Carol & Francis Raley | Grand Junction, CO
Boni Randall | Kelso, WA
Marilyn & Frank Rega | Huntington, NY
Judith Rice-Jones | Colorado Springs, CO
David Riles | Fontana, CA
Ted Rozkuszka | Loveland, CO
Jeff Ruch | Bethesda, MD
Helen Rudie | Fargo, ND
Loren C. Sackett | Tampa, FL
Ed Schlegel | Capistrano Beach, CA
Brown Bag Farms | Petaluma, CA
Lillian Schlissel | Brooklyn, NY
John A. Shower | Greenville, CA
Daniel Silver | Los Angeles, CA
Willie Sommers | Phoenix, AZ
Sandra Spencer | Littleton, CO
Douglas H. Sphar | Cocoa, FL
David Ross Spildie | Missoula, MT
Mike Splain, Ventana Wilderness Alliance | Scotts Valley, CA
Richard E. Squires | Reno, NV
Phil Starr | San Antonio, TX
Tyrone Steen | Colorado Springs, CO
Paul Stouffer | Bozeman, MT
Gary & Cindi Stuckey | Littleton, CO
Charles L. Thomas | Eugene, OR
Jon Thomas | Prescott Valley, AZ
Don Tidwell | North Hollywood, CA
James A. Townsend | Ellijay, GA
Robert Utter | Anchorage, AK
Charles Vane | Albuquerque, NM
Curt VonderReith | Encinitas, CA
Grant R. Weber | Naples, FL
Kim Weir | Paradise, CA
Peter Weisberg | Reno, NV
G.H. Wiegand | Inkom, ID
Carol Withrow | Salt Lake City, UT
Berta Youtie | Prineville, OR
Jennifer Ziegler & Todd Cedarholm | Jackson, WY

A holiday party and a visit to the longwall

What an eventful December we've had at *High Country News*! On Dec. 8, we hosted a fabulous holiday open house at our Paonia, Colorado, office. It was a standing-room-only event — subscribers, community members and readers from near and far showed up for this annual festive gathering. Quite a few locals stopped in, as they do each year, but we also had subscribers from all over Colorado. One woman even traveled all the way from Albuquerque, New Mexico.

We gave away some *HCN* swag for door prizes — our *HCN* socks are pretty amazing, actually — and were treated to delicious appetizers, desserts and libations. It's pretty safe to say everyone had fun. Thanks to all our subscribers and donors who stopped in, as well as to those who couldn't make it in person this year. We couldn't do this important work without you.

Earlier this month, some of the *HCN* staff took a unique field trip. Intern **Anna V. Smith**, Assistant Editor **Paige Blankenbuehler** and Associate Designer **Brooke Warren** visited the West Elk Mine near Somerset, Colorado, one of three mines near Paonia, and the last one still in operation. While they were on the tour, which took them 1,500 feet underground and about seven and a half miles into the mine, West Elk's environmental engineer explained the process

of mining, including exploration and reclamation. They went from the opening of the mine to the "longwall panel" where the coal mining takes place, and saw the "continuous miner," a huge machine that scrapes coal from the seams, in action. The workers were very generous with their time and answered all kinds of questions as they showed off the inner workings of the mine. It was an important educational trip for the staff, as *HCN* is dedicated to covering energy issues, including the ways they play out in our backyard, the Western Slope.

We had an extra-special visitor come by the office this month. Deputy Editor-Digital **Kate Schimel**'s mom, **Beth Holland**, visited Paonia for the first time. She has been a subscriber for over two decades; in fact, her longtime subscription was the main reason Kate applied for an *HCN* internship in the first place.

Don't forget that we will take a break over the holidays, so the next issue will not hit your mailbox until next year. January will be exciting, with new staff and interns arriving in Paonia and a host of in-depth, important new stories in the works. Until then, keep up with our stories at hcn.org. Hope everyone has a great holiday season. We'll see you in 2017!

—Lyndsey Gilpin for the staff



Guests chat with *HCN* staff at our annual holiday party. Come next year if you can! BROOKE WARREN

S O S H I N E S A

Obama and the West

President Barack Obama's environmental record reflects an inclination toward compromise and incremental progress: He delisted 29 recovered species, but weakened the Endangered Species Act; he designated over two dozen national monuments, more than any other president, but left other key public lands unprotected; he promoted tribal sovereignty, but made little progress in addressing the systemic inequalities in Indian Country; and he failed in his attempts to loosen Big Ag's grip over small ranchers.

Yet Obama may well be remembered as the first leader to seriously address the foremost environmental issue of our times — climate change. Though he oversaw surges in oil and gas production, he embraced clean energy and tackled greenhouse gas emissions, drawing deep opposition from the fossil fuel industry along the way.

Now comes a president whose Cabinet choices appear innately friendly to extractives and hostile to public lands and environmental protections. The Republican-backed Trump administration has pledged to roll back as many of Obama's decisions as it can. Still, it may prove hard for it to undo all the accomplishments of the 44th president.

14 **Delisted species**

Obama's administration has delisted more endangered species than any other

16 **Tribes get a seat at the table**

Native American leaders say Obama's legacy boils down to one thing: He listened

19 **Obama's monuments of the West**

3.9 million acres designated, 8.1 million more acres proposed

20 **The 'chickenization' of beef**

Under Obama, small-scale ranchers remained without safeguards against Big Ag

Under Obama, the West re-examined its relationship to energy

Eight years ago, President-elect Barack Obama wanted Colorado Sen. Ken Salazar to be his Interior secretary. David Hayes, who was leading Obama's transition team for Interior and other agencies, remembers trekking to Salazar's office on Capitol Hill at least twice to make the case for the Cabinet post.

He had the perfect bait. Three years earlier, Sen. Salazar had led a successful effort to require the Bureau of Land Management to authorize renewable energy projects on public land. The agency was supposed to approve 10,000 megawatts of solar, wind and geothermal electricity by 2015, but under then-President George W. Bush, its congressional mandate went nowhere. Hayes, seeing a rare opportunity, told Salazar that as Interior secretary, he'd have the chance to make renewables on public land a signature issue.

"We talked about renewable energy

and how the Interior Department could turbo-charge potential renewable energy on public lands and make up for the historic and long-standing failure to give renewable energy anything like the attention fossil fuels had gotten on public lands," Hayes recalled in a recent interview.

Salazar took the job, and made clean energy projects on public land a top priority. The initiative took the department from zero to 60 on renewables, and it is a clear example of the paradigm shift that the Obama administration brought to the West and to its energy development.

Eight years later, a new president-elect has dismissed climate change as a hoax, promised to revive coal and other extractive industries, and sworn to cut — or gut — the U.S. Environmental Protection Agency. Come Jan. 20, 2017, many of Obama's initiatives will be under sustained attack. Some of them won't survive. But Obama helped transform the

GOOD DEED



and the climate. That shift will be hard to undo. FEATURE BY ELIZABETH SHOGREN

West's view of its energy potential, and he encouraged the region to get involved in the global fight against climate change. Changes like that go deep and may prove harder to undo.

CLIMATE CHANGE

The president's work on climate change started slowly. During his first term, Obama spent most of his political capital on the Affordable Healthcare Act and his economic recovery plan to lift the nation out of recession. Following his re-election, however, he focused broadly on domestic energy production and later the growing threat of climate change.

In early 2012, Obama traveled to Boulder City, Nevada, to stand in the midst of a sea of photovoltaic panels at what was at the time the largest facility of its kind in the country. "I want everybody here to know that as long as I'm president, we will not walk away from the promise of clean energy," he told

the crowd. But he also underscored his commitment to drilling. "We are going to continue producing oil and gas at a record pace. That's got to be part of what we do. We need energy to grow."

In his 17-minute speech, which was entirely about energy, Obama did not use the term "climate change" once, signaling an administration-wide retreat that continued for many months. Congressional Republicans, some of whom deny that climate change is a threat and others who reject attempts to deal with it as economically risky, kept attacking. Meanwhile, activists grew impatient.

In February 2013, 48 climate scientists and activists were arrested after some of them cuffed themselves to the White House gate, determined to force Obama to make potentially politically perilous decisions to fight global warming, such as rejecting the proposed Keystone XL pipeline. Sierra Club Executive Director Michael Brune, who was among them,

told me before the demonstration that their civil disobedience signaled "a new level of urgency regarding climate change, and a growing impatience about the lack of political courage that we're seeing from the president and from leaders in Congress." The demonstration also marked a major shift for some mainstream environmental groups, who began prodding the president more and cheering him less. This period also saw the rise of brasher environmental groups like 350.org and WildEarth Guardians, who staged large public demonstrations or tackled the president in the courts.

In response, Obama came out with his Climate Action Plan in June 2013. It outlined a sweeping agenda to use his executive powers to slash greenhouse gas emissions from power plants, reduce methane emissions from oil and gas production and cut the federal government's carbon pollution. It also recommended preparing communities for bigger storms,

President Barack Obama speaks at the Solar 1 facility in Boulder City, Nevada, in 2012, at the time the largest solar facility in the nation. "I want everybody here to know that as long as I'm president, we will not walk away from the promise of clean energy," he told the crowd.

ETHAN MILLER/
GETTY IMAGES

"It's a gargantuan legacy. I put (Obama) as one of the top environmental presidents in history. He's not Theodore or Franklin Roosevelt. But he's in that league with Lyndon Johnson, J.F. Kennedy and Richard Nixon."

—Douglas Brinkley, historian, Rice University

rising seas and fiercer wildfires, and it called for better climate science. In January 2014, Obama recruited John Podesta, former chief of staff for President Bill Clinton, to implement the plan. Soon, the administration was ticking off successes.

In his final years in office, Obama has produced a powerful National Climate Change Assessment, preserved vast stretches of land as national monuments, won court battles over its clean car rules and the EPA's right to regulate carbon pollution from power plants, drafted regulations to slash greenhouse gases, and negotiated major bilateral treaties with China, India and Brazil, as well as the historic Paris Climate Agreement with nearly every nation on the planet. What had started slowly was picking up steam.

Under Obama, the Interior Department started examining climate impacts across broad landscapes, combining the forces of various state and federal agencies and universities. The department set up and staffed 22 landscape conservation cooperatives across the country and eight regional climate centers. The National Park Service, which had no climate change program before Obama, has completed climate impact assessments on 235 of 413 of the nation's parks — documenting intensified wildfires, hastened snowmelt, vanishing glaciers, rising sea and lake levels, warming streams and displaced plants and animals.

All told, Obama has elevated climate change's importance for federal land and

water managers and invigorated state and local action.

"It's a gargantuan legacy," says Douglas Brinkley, a historian at Rice University. "I put him as one of the top environmental presidents in history. He's not Theodore or Franklin Roosevelt. But he's in that league with Lyndon Johnson, J.F. Kennedy and Richard Nixon." Climate change is shaping up to be a major issue for Obama's post-presidential life. "It's become personal to him. His wife and daughters have helped him reach this conclusion."

Obama himself underscored his dedication on a trip to Yosemite National Park in June with the First Lady and their daughters. "When we look to the next century, the next 100 years, the task of protecting our sacred spaces is even more important," he told some 200 invited guests, against the stunning backdrop of Upper and Lower Yosemite Falls. "And the biggest challenge we're going to face, in protecting this place and places like it, is climate change. Make no mistake: Climate change is no longer just a threat; it's already a reality."

RENEWABLES

Throughout the West, climate change has exacerbated forest fires, threatened water supplies, flooded communities, killed millions of trees and irreversibly altered the landscape. As these consequences have become clearer, the Obama administration has helped steer the West toward a cleaner energy future.

Eight years after Salazar became

Interior secretary, the BLM has approved plans for 15,000 megawatts of renewable power, enough to power millions of homes. Projects providing up to 5,500 megawatts' worth of power are already built or under construction, mostly in California and Nevada.

By establishing a system for approving renewable energy projects on public lands, the Obama administration helped drive phenomenal growth in renewable electricity in the West and a precipitous drop in prices. "I think it is an unsung part of the administration's legacy, and I think the administration can and should be taking credit for really creating the conditions for this huge clean energy revolution to take off," says Rhea Suh, who was assistant secretary of Interior for policy management and budget until she became president of the Natural Resources Defense Council last year.

After Congress passed the Energy Policy Act of 2005, Ray Brady was tapped to be the BLM's manager for implementing the law. With targets for renewable energy 10 years in the future, nothing much happened. The top staff at the agency gave the new program little notice. Expediting oil and gas production was their chief focus. The agency didn't even open a renewable energy office. That all changed when Salazar walked in the door.

In his first secretarial order, in March 2009, Salazar moved up the deadline for permitting 10,000 megawatts of clean power on BLM lands three years, to 2012. "We have to connect the sun of the

Snapshot

Delisted Species

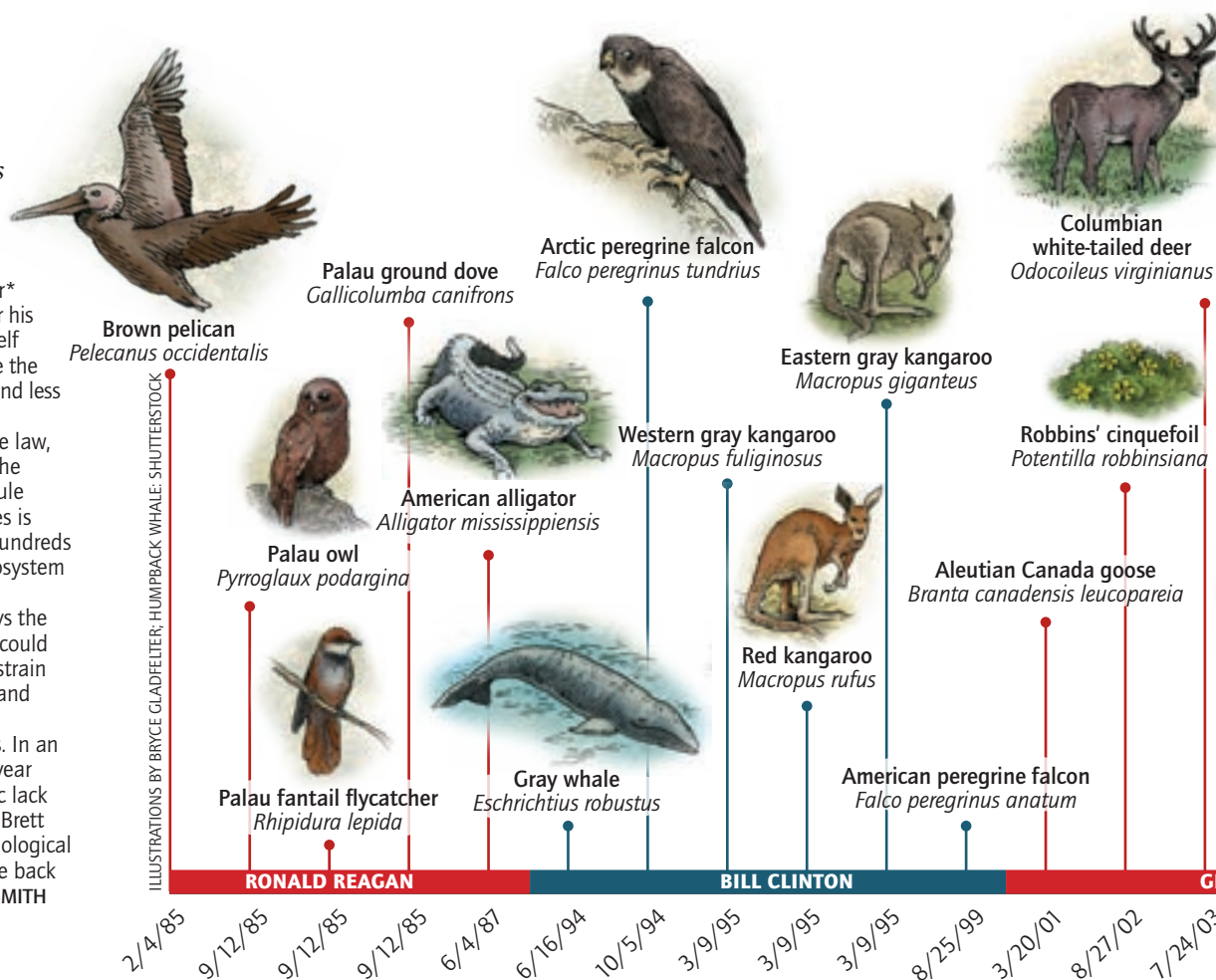
Obama has delisted more endangered species than any other administration

During Obama's presidency, 29 species recovered enough to be taken off the endangered species list, more than under all four* presidents before him. And 340 were added, far more than under his predecessor, George W. Bush. But the Endangered Species Act itself has changed during the Obama years, and critics say that despite the impressive numbers, it's actually become more business-friendly and less effective at protecting wildlife.

The latest change came in October, when a core part of the law, the citizen petitioning process, was changed. Anyone can ask the federal government to consider listing a species, but the new rule requires petitioners to first notify the states in which the species is found. In the past, environmental groups have petitioned for hundreds of species at a time, a useful strategy if many species in an ecosystem faced the same threats. Now, they must file for one at a time.

The change was meant to improve the petitions' quality, says the U.S. Fish and Wildlife Service, which processes them. But it also could mean that more petitions will be filed — and that in turn could strain the budget of both Fish and Wildlife and the National Oceanic and Atmospheric Administration, which handles marine species.

Both agencies frequently miss deadlines, triggering lawsuits. In an attempt to break that cycle, in September they created a seven-year work plan to prioritize species. Yet that doesn't address a chronic lack of funding, and could create a backlog of lower-priority species. Brett Hartl, director of endangered species policy for the Center for Biological Diversity, says, "You have to hope that the species you put at the back of the list isn't going to go extinct while it's waiting." ANNA V. SMITH



deserts and the wind of the plains with the places where people live,” Salazar said at the time. He pushed his staff to identify specific zones on U.S. public lands suitable for large-scale production of solar, wind, geothermal and biomass energy.

This was a revolutionary vision at the time; there weren’t any large-scale solar plants anywhere in the United State. Brady had to travel to Spain in 2008 just to glimpse the technology. For decades, Brady had been an obscure bureaucrat, but suddenly he found himself regularly summoned to high-level meetings with Salazar and other Interior leaders. Meanwhile, Salazar met regularly with other Cabinet members — including the secretaries of Defense, Agriculture and the Treasury — to knock down barriers to nascent projects.

The timing was right: Obama had campaigned, twice, on the promise of clean energy and its ability to create good jobs for the future. And there was a growing market for renewable power, because many Western states had passed renewable energy requirements, while California was pursuing one of the world’s most aggressive commitments to greenhouse gas reduction.

The enormity of the endeavor really struck Brady when he first visited the Ivanpah Solar Generating System project in San Bernardino County, California, in 2012: Three shining towers, emerging from the desolate desert, each surrounded by a huge circular field of mirrors, 173,500 of them, and covering 3,500 acres



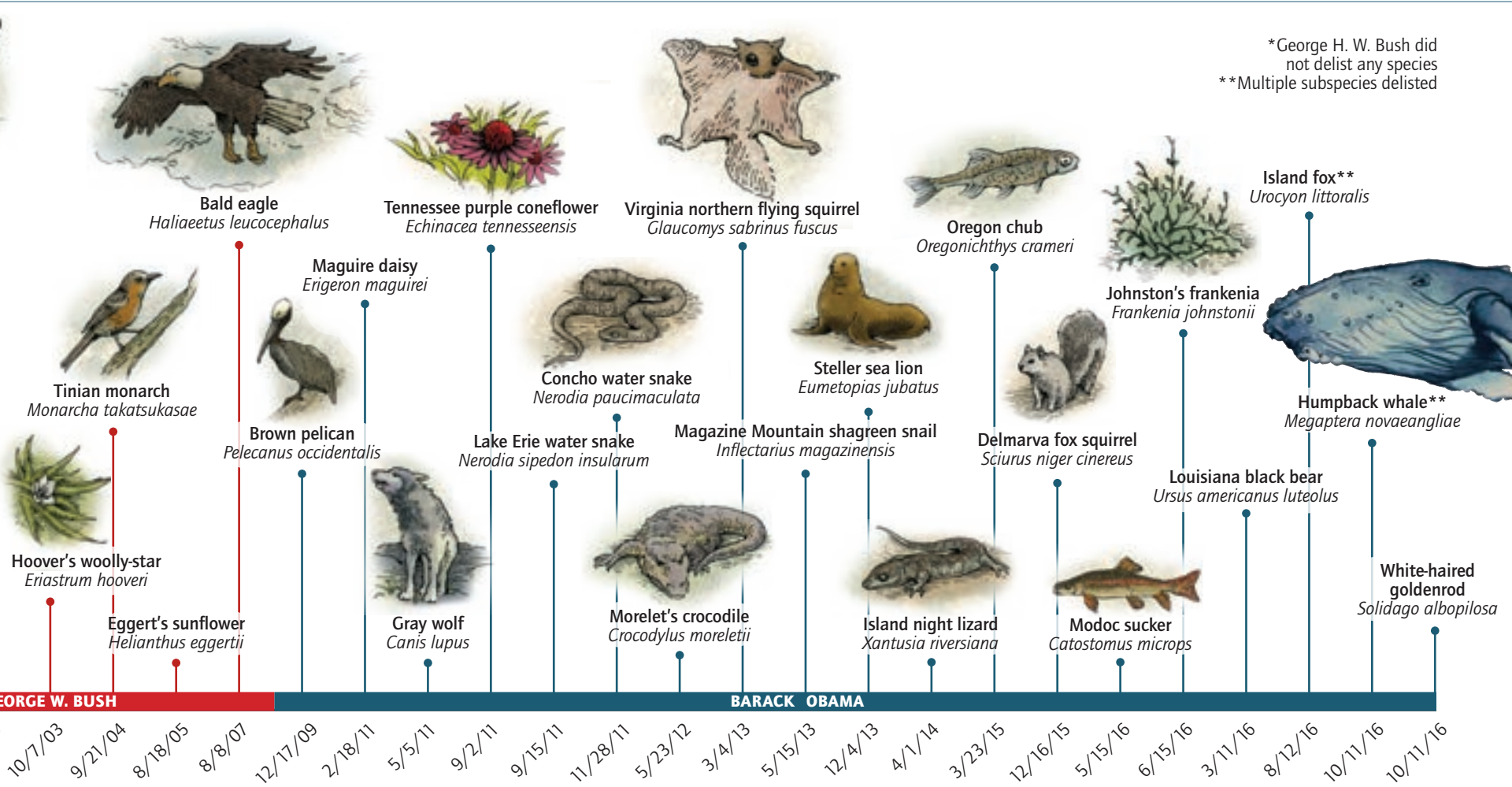
THE DANISH WIND INDUSTRY ASSOCIATION/ JACOB NIELSEN / WWW.JACOBNIELSEN.COM

of BLM land. (Critics say such facilities endanger birds and other wildlife, but the project stands as a monument to the shifting attitudes toward energy on public lands.)

For much of his career, Brady worked on oil and gas, where drilling pads covered a single acre. “It’s awe-inspiring,” said Brady, who recently retired from the BLM. “I was absolutely amazed by the scope and scale and size of the project. It had not sunk into me before that. It really was, in my mind, the most exciting period in my 40-year career.”

While nudging individual projects forward, the agency’s new renewable energy office worked to track down Western locations suited to solar power. They looked for easy access to transmission lines and big metropolitan areas, lack of conflicts with local tribes, and few risks to endangered wildlife and plants or other fragile natural resources. In these so-called solar energy zones, the agency conducts the environmental analysis up-front, to reduce permitting times. The BLM held its first-ever competitive auction for solar projects in the summer of 2014. Three companies

Department of the Interior Secretary Ken Salazar visits a Copenhagen, Denmark, offshore wind farm in 2009. Salazar’s first official order on taking office earlier that year was to move up the deadline for permitting renewables projects on public lands.





President Barack Obama talks with Standing Rock Sioux Tribe youths during a luncheon at a Washington, D.C., pizzeria in 2014. Two years later, his administration temporarily halted the Dakota Access Pipeline the tribe was battling. BRENDAN SMIALOWSKI/AFP/GETTY IMAGES

A seat at the table

Native American leaders say Obama's legacy boils down to one thing: He listened

"On the campaign trail, (Obama) made it clear that he was going to take tribes and tribal sovereignty very seriously. His actions have spoken even louder than his words."

—Brian Cladoosby, chairman of the Swinomish Indian Senate and president of the bipartisan National Congress of American Indians

This fall, as the months slid by and President Barack Obama failed to address the increasing violence between police and pipeline protesters near North Dakota's Standing Rock Sioux Reservation, many activists felt abandoned. In one YouTube video, 23-year-old Kendrick Eagle hunches against the wind, addressing the president. He recalls that Obama once mentioned him by name in a speech. "That's a life-changing thing for me, because it was like you cared about me, cared about my story." Eagle pulls his hood up and looks directly at the camera. "Help us stop this pipeline. Stick true to your words, because you said you had our back. I believed in you."

For much of American history, a president who ignored Native American protests wouldn't have been newsworthy. But many tribal leaders believed Obama was different. "On the campaign trail, he made it clear that he was going to take tribes and tribal sovereignty very seriously," says Brian Cladoosby, chairman of the Swinomish Indian Senate and president of the bipartisan National Congress of American Indians. "His actions have spoken even louder than his words."

Obama began working to repair broken relationships with tribal governments almost immediately. In 2009, he invited leaders from 564 federally recognized tribes to the White House Tribal Nations Conference, an event that became an annual tradition. Each fall, Native Americans came to Washington to be heard by high-ranking officials, and officials — like

Interior Secretary Sally Jewell, who oversees 55 million acres of Indian Country — came face-to-face with people affected by their decisions. "We got one meeting with Clinton and zero with George W. Bush," says Cladoosby. "Eight meetings in eight years is unprecedented."

Cladoosby also points to the 2010 Indian Health Care Improvement Act, which addresses health-care disparities in Indian Country, and the 2013 Violence Against Women Act, which allows tribes to prosecute non-Natives who commit certain crimes on reservations, including domestic violence. Obama also restored more than 542,000 acres of land to tribal control, compared to 233,000 acres under Bush, and granted Alaska Natives the right to put land into a trust, which can give tribes greater control over their fish, wildlife and law enforcement. Additionally, the administration settled hundreds of outstanding lawsuits.

"The deck is cleared," says Kevin Washburn, who served as assistant secretary for Indian Affairs from 2012 to 2015. "The government-to-government relationship is no longer characterized by serial litigation. That alone will make cooperation much easier."

Yet not everyone has noticed the supposed progress. Disparities in income, health and education continue to plague many reservations, and Republican state Rep. Sharon Clahchischilliage of New Mexico says Obama's policies have hurt — not helped — the Navajo Nation. Poverty has worsened over the last eight years, she says: "We've lost 6,000 jobs in my county.

The majority are oil and gas jobs."

Another Navajo Republican (and former Democrat), Arizona state Sen. Carlyle Begay, has come to see Democratic policies toward tribes as paternalistic, based on federal handouts rather than economic development. Yet even he thinks Obama's commitment to Native American issues is unparalleled.

AS OBAMA'S PRESIDENCY NEARED ITS END, though, it appeared that his reputation in Indian Country would be shadowed by the events at Standing Rock. Then, on Dec. 4, the U.S. Army Corps of Engineers denied a permit for the Dakota Access Pipeline to be built beneath Lake Oahe — the section that most concerned the Standing Rock Sioux because of its possible impact on their drinking water. It's unclear how much Obama influenced the decision, but many activists applauded the president.

Yet Monte Mills, an Indian law professor at the University of Montana, says the decision may be less monumental than a quiet announcement made in September. In response to the Standing Rock protests, the Department of Justice, the Army and the Department of the Interior announced they'd meet with tribes in an effort to change federal policy so that Native Americans would have greater involvement in future infrastructure development. If the agencies indeed adopt new rules mandating tribal consultations, it could affect much more than a single pipeline: Tribes would have more say over every future pipeline, transmission line, port, rail and transit proposal that's considered "tribally significant." They would have a stronger voice.

Again and again, the Native Americans I spoke to reiterated this single point: Obama gave them a seat at the table. He listened when previous presidents had not. So perhaps it's no coincidence that the Obama years coincided with some of the biggest Native American uprisings in recent memory — not just the dozens of tribes who united at Standing Rock, but others who fought for their voting rights, sought greater control over fisheries, opposed coal terminals, even burst into mainstream music. Perhaps it's also no coincidence that an unprecedented number of Native Americans ran for state and federal office in 2016 — eight for Congress, up from two in 2014, and over 90 for state legislatures.

Under Donald Trump, policies can be reversed, decisions undone. But the platform Native Americans gained will have lasting effects. As Standing Rock Sioux chairman Dave Archambault II said on *Democracy Now!*, "It feels like, finally, for the first time in history, over centuries, somebody is listening to us." KRISTA LANGLOIS

won bids, and one recently started construction in Dry Lake, Nevada, north of Las Vegas.

Interior was much less successful at establishing wind power on public land. The Chokecherry and Sierra Madre wind project in south-central Wyoming, for example, has been a priority since Salazar took the helm at Interior. The enormous project would erect up to 1,000 wind turbines, employing as many as 1,000 people during peak construction, and eventually provide clean electricity to about a million homes. The BLM gave it basic approval in 2012, but many more permitting requirements remained. “To put it bluntly, they lost momentum,” says Bill Miller, president of two subsidiaries of the Anschutz Power Company of Wyoming and TransWest Express. Miller still believes in the project despite the delays. He told me: “There is no better wind asset in the country.” And he’s optimistic that he’ll get final approval before Obama leaves office to erect the first 500 turbines.

With plenty of windy places on private land, wind developers may simply ignore public land. But both geothermal and solar projects have a bright future, even under a Donald Trump administration. The price of photovoltaic solar systems continues to drop, making public land attractive for small and mid-sized projects, especially in areas where the agency has done the upfront work, so developers can get relatively quick

approval. This fall, the administration and California state government completed the Desert Renewable Energy Conservation Plan, which charts a course for developing clean power across 22 million acres of desert. In November, the administration finished the regulations that will govern competitive leasing for renewable power projects on public land.

EXTRACTIVES

Still, when it comes to fossil fuels, the administration’s record remains mixed as far as what it did, and didn’t do, for the climate. Obama curtailed fossil fuel pollution but failed to significantly limit industry’s access to the public’s vast fossil fuel resources. Even while promoting renewable energy, the White House simultaneously supported an expansion of oil and gas drilling. Shale gas production grew fourfold from 2009 to 2015, oil production nearly doubled, and oil exports tripled.

On the regulatory side, though, the EPA set new rules to reduce leakage of methane, a potent greenhouse gas, from new oil and gas drilling. Near the end of the administration, the BLM went even further, setting new requirements to reduce methane leaks from existing oil and gas operations on public land.

Obama was slow to apply his climate change principles to fossil fuels beneath federal land. Throughout his administration, the Interior Department continued to lease federal lands for oil and gas

development and fought in court against environmentalists’ “keep it in the ground” campaign.

Coal, long the mainstay of U.S. electricity production, declined dramatically during Obama’s tenure, a fact that helped the nation reduce its greenhouse gas emissions. This was primarily due to competition from abundant, low-price natural gas, caused by the boom in hydraulic fracturing. But Obama’s air pollution policies played a role, too. By setting the first-ever limits for mercury and other toxic air pollutants, Obama forced companies to decide whether it was cheaper to install expensive pollution-control devices or switch to natural gas or renewables. “What the Obama administration rules did was force utilities to consider the question about whether or not to keep coal online,” the Sierra Club’s Brune explained.

But most of this progress was the result of the EPA’s work. It was only in the final 18 months of Obama’s term that Sally Jewell, who replaced Salazar as Interior secretary, started scrutinizing the department’s coal policies. She held listening sessions in coal country and in Washington, D.C. In January, she set a moratorium on new coal leasing and ordered the first-ever analysis of greenhouse gas impacts from federal coal, which accounts for more than 40 percent of the coal used to produce electricity in the U.S. In Obama’s last State of the Union address, in January, he declared

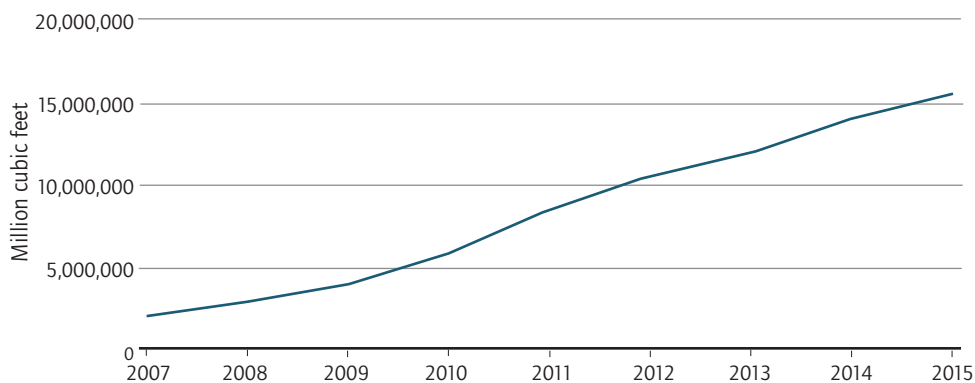
The Chokecherry and Sierra Madre Wind Energy project, slated for BLM and private land in Carbon County, Wyoming, got preliminary approval in 2012. But additional permitting is still needed before the 1,000 turbines can go in. ©DAVE SHOWALTER, LIGHTHAWK AERIAL SUPPORT



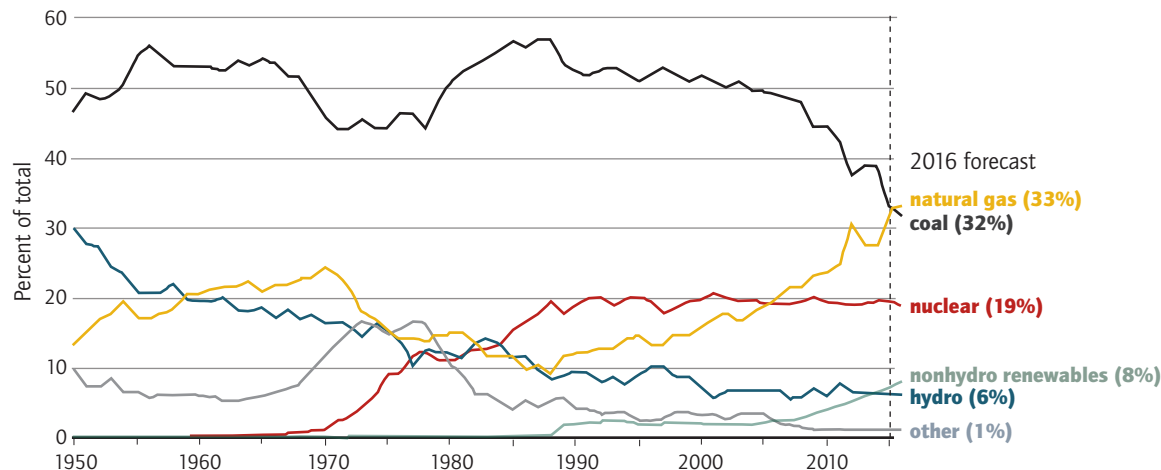


Hours after his solar speech in Nevada in March 2012, President Barack Obama's motorcade arrives at an oil and gas production field on federal lands near Maljamar, New Mexico, in the Permian Basin. "We are going to continue producing oil and gas at a record pace," he told the crowd. "That's got to be part of what we do. We need energy to grow." JASON REED/REUTERS

Growth of natural gas production from shale formations (2007-2015)



Annual share of total U.S. electricity generation by source (1950-2016)



ENERGY INFORMATION ADMINISTRATION

that it was time to revamp the way the country manages its coal and oil, "so that they better reflect the costs they impose on taxpayers and the planet."

Despite this, the administration pulled its punches on federal coal until its final days. Most notable was its decision to support Colorado's plan to allow expansion of coal mining into otherwise roadless national forest areas in the North Fork Valley (where *High Country News* is headquartered).

In 2014, a federal judge halted an expansion of Colorado's West Elk Mine because the BLM and Forest Service had failed to take a "hard look" at the climate impacts that an exemption to the roadless rule would create. Environmental groups had sued, demanding that the BLM and Forest Service calculate the costs to society of greenhouse gas emissions from the mining and combustion of that federal coal.

In November, the Forest Service released an environmental impact statement that revealed that its preferred alternative could increase greenhouse gas emissions 433 million tons over time and cost society billions of dollars. Yet it continued to insist that the expansion should take place.

The pollution would come from burning the coal for electricity and from venting methane into the air during mining. Methane is high at West Elk because the coal seams are especially gassy.

Robert Bonnie, undersecretary of Agriculture for natural resources and the environment, justified the decision. "No one is under the belief that we're going to

immediately change the energy mix starting today,” he said. “There’s going to be some level of coal for some time to come.”

But Earthjustice attorney Ted Zukoski sees a deep hypocrisy in the decision. “There is a conflict between this administration’s soaring and bold rhetoric on the need to address climate change and its failure to keep fossil fuels in the ground,” he says. “Billions of tons of federal coal were leased on Obama’s watch.”

As for natural gas and oil, the administration purposefully avoided regulations that would slow the upsurge in production. “This administration was not willing or able to take on two fossil fuel industries at the same time,” Brune told me. “And it proactively took many steps to help support the gas industry. We’re going to be wrestling with the effects of that for decades. An increased reliance on natural gas is a disaster for our climate.”

WHAT WILL REMAIN?

During most of his administration, Obama faced Republicans in Congress who simply refused to legislate. In response, Obama turned to executive action. Now, however, Trump’s win endangers much of the progress he made. Trump has vowed to abandon the Paris climate treaty and cancel the Clean Power Plan. Although the specifics remain unclear, many of Obama’s other climate policies, such as his methane rules, are also at risk. But some important changes may escape Trump’s chopping block. The administration and its policies don’t stand alone, so they can have lasting impact. Obama’s energy and climate change policies augmented on-the-ground realities, such as many Western states’ eagerness to embrace renewable energy and the improving economics of solar power. “They helped facilitate it,” said Mark Squillace, law professor at the University of Colorado at Boulder. “But the story of the West will be about what the states are doing.”

In the Southwest, for example, local, state and federal government officials, scientists and businesses have long worried about the impacts of climate change on water supply, fragile species and wildfire. Obama’s conservation cooperatives and regional climate centers filled a void. “Everybody knew these things were happening,” said Jonathan Overpeck, director of the University of Arizona’s Institute of the Environment. “Now we have a mandate for research and figuring out what can we do about it. We’re trying to not just generate scientific knowledge for the sake of curiosity, but to make sure we’re generating science that’s useful.”

Hayes, meanwhile, who had been tapped for a big role in a Clinton transition, was flabbergasted by the election results. He hopes the Interior Department’s commitment to climate science will survive the new administration.

Even if research continues, many of Obama’s fossil fuel regulations surely will be targeted by Trump’s administration. The new EPA chief and Interior secretary

could settle industry lawsuits by asking courts to send Obama’s rules — including the Clean Power Plan, methane rules and BLM’s fracking regulations — back to agencies to rewrite them. Environmental groups would then likely sue to block Trump’s new rules and reinstate Obama’s, and the ensuing legal battles could take years.

“If Trump gets only one term and is replaced by a Democrat, damage will be significant but also limited,” Squillace said. “I think if Trump gets two terms, all bets are off and significant change in public lands and environmental policy will occur.”

Another danger is a possible government “brain drain.” Squillace, for example, was a young lawyer at the Interior Department when President Ronald Reagan appointed Interior Secretary James Watt, who was hostile to conservation. Squillace remembers asking to be taken off one case after another, because he considered Watt’s positions indefensible. After nine months of this, he resigned. Trump may inspire a similar exodus of scientists and lawyers.

Regardless, some of Obama’s climate policies likely will withstand at least the early years of a Trump administration, particularly the BLM’s renewable energy program. If Trump kills the Clean Power Plan, that would take away one driver for big solar projects on public land. But others won’t disappear, most significantly, California Gov. Jerry Brown’s directive that his state gets 50 percent of its power from renewable sources by 2030.

Steve Black, who was Salazar’s counselor at Interior and now is an energy

and climate policy consultant based in California, sees other reasons for optimism. More than 100 full-time, career BLM staffers work in renewable energy offices across the West that didn’t exist before Obama. Massive projects like Ivanpah will keep delivering clean power to the grid. “There’s steel in the ground,” he said. “We built 15 utility-scale projects. Those things can’t be changed. I do think there are lasting elements of this legacy.”

Despite Trump’s cheerleading for coal, the new administration is unlikely to rescue the dirtiest fossil fuel. Market forces, namely low natural gas prices, are the main reason for its downturn, but the growing international desire to combat climate change is another. Trump similarly is unlikely to boost oil and gas production, as long as prices are low. For instance, Trump and a Republican Congress may open the Arctic Wildlife Refuge to oil companies, but high costs could deter drilling.

And even with a president and Congress unwilling to tackle tough questions on energy and the climate, states will remain largely responsible for their own energy choices. Even with big utilities fighting hard against solar, low renewable energy prices and state mandates will make the clean energy revolution hard to stop. It’s unlikely that Trump will want to be responsible for killing the good jobs that renewable energy is creating. For all its starts and stops, the Obama administration helped the West embrace a clean energy future that takes climate change into consideration. Trump’s administration won’t be able to change that. □



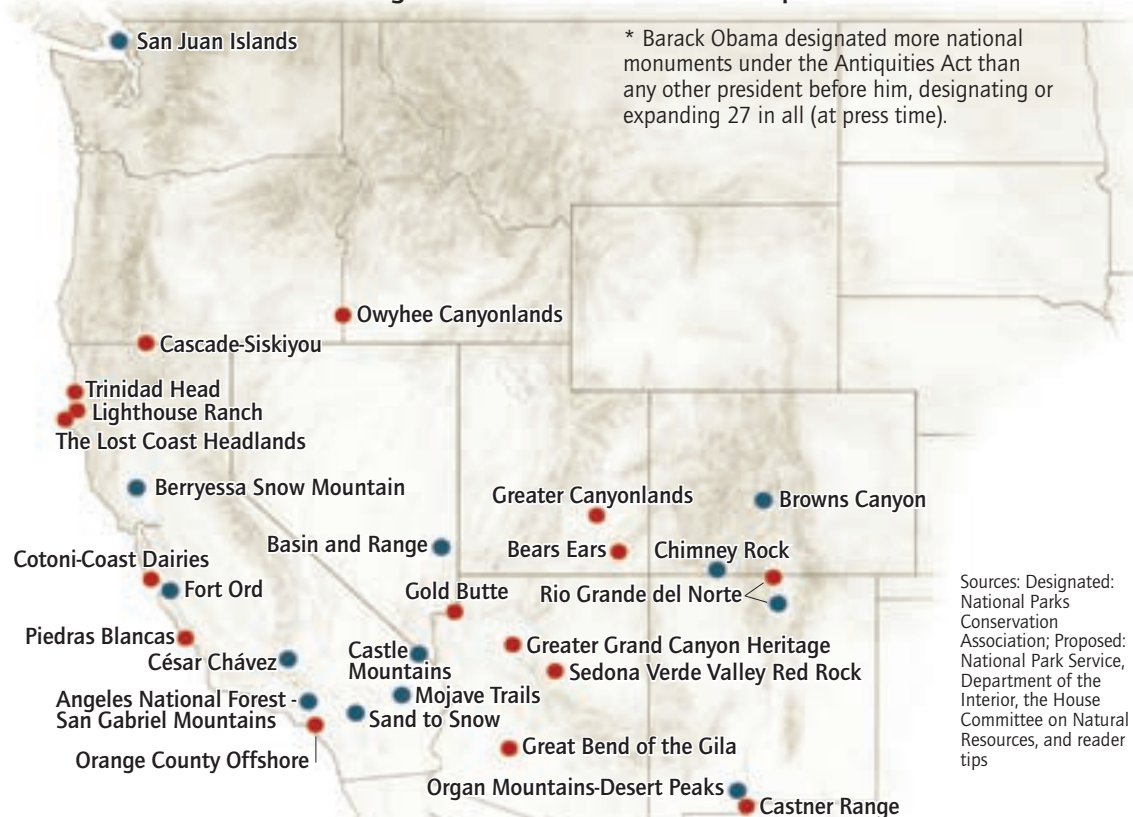
Correspondent Elizabeth Shogren writes HCN’s DC Dispatches from Washington. @ShogrenE

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

Monument man

The national monuments Obama protected — and the ones he left behind

● Designated 3.9 million acres* ● Proposed 8.1 million acres



Sources: Designated: National Parks Conservation Association; Proposed: National Park Service, Department of the Interior, the House Committee on Natural Resources, and reader tips



The ‘chickenization’ of beef

Under Obama, small-scale ranchers remained without safeguards against Big Ag

▲ A farmer dumps a load of mulched corn at a feedlot operated by JBS in Wiley, Colorado. JBS is one of the Big Four meatpackers that has grown since the “merger mania” that started in the 1980s.

JOHN MOORE/GETTY IMAGES

In 2008, when Barack Obama was first campaigning for the presidency, his platform for rural Americans in agriculture was pointed: “In an era of market consolidation, Barack Obama and Joe Biden will fight to ensure family and independent farmers have fair access to markets ... (and) strengthen anti-monopoly laws.”

At the time, four big meatpacking companies controlled 83 percent of the industry, which kept livestock prices low and sometimes forced small ranchers out of business. Between 1980 and 2008, 516,000 beef cattle operations, or about 40 percent, folded. By the end of Obama’s first term, that number would climb to over 43 percent. His efforts to help small ranchers overall fell short or were blocked by an obstructionist Congress, and consolidation continued. Now, as Obama leaves office, his U.S. Department of Agriculture has finally made progress on a series of rules to help. One of those rules, which would help ranchers speak out against unfair industry practices, was published in the *Federal Register* in December.

Many ranchers, meanwhile, suffering from the kind of economic anxiety that helped propel Donald Trump to the presidency, are hoping that Congress,

now freed from the need to fight Obama, will support the final implementation of those rules and help make the U.S. cattle industry great again.

In many ways, cattle ranchers are the holdouts. The hog and chicken industries have already undergone vertical integration: Massive meatpacking companies own the animals that farmers raise, as well as some of the infrastructure they depend on, such as feed. As a result, the meatpackers have much more power over the entire process, including pricing. Chicken farmers were the first to be integrated, in the 1960s and 1970s. Hog producers were next; between 1980 and 2012, their industry saw a 91 percent loss in the number of operations. Sheep were also impacted by meatpackers’ consolidation: The industry is less vertically integrated, but a third of its operators have opted out since 1980.

“We’re trying to stop the chickenization of our cattle industry, and it is happening fast,” says Bill Bullard, rancher and CEO of the Ranchers-Cattlemen Action Legal Fund, or R-CALF, a Billings, Montana-based national trade association that supports cattle producers and has led the fight against the “Big Four”

meatpackers — Cargill, Tyson, JBS and National Beef. “It’s the last major livestock industry that has not yet been fully captured from birth to plate by the multinational corporations.”

Ranchers have faced significant consolidation of beef packers since the 1980s, during what the USDA called “merger mania.” From 1980 to 2010, the number of packing plants nationwide dropped 81 percent. During the same time, nearly a third of all feeders — the companies that purchase cattle from ranchers, fatten them for a few months, and sell them to meatpackers — left the industry. Wyoming rancher Taylor Haynes says he noticed the difference on his drives to pick up equipment in Colorado. “When I started in this business in ’87, driving between Cheyenne and Denver, there were a number of small family feedlots,” he says. “One or two, every two or three years at first, went out of business. Now those are gone, all the small people feeding a couple thousand head or less.”

He says the “Big Four” packers now act like kingmakers, choosing which feeders to work with and which to let wither. Once many of the feeders were gone, so went competitive bidding for cattle, and ranchers along with it.

Now, there are so few feeders, sometimes a rancher gets just one bidder on his or her cattle going to the feedlot. “There used to be 20 or 30 bidders,” Haynes says. Now, the bidder is usually a feeder who has a contract with a major meatpacker. Many packers now also own some of the cattle they slaughter, which means they don’t always need to buy from ranchers. As the Obama-Biden platform described it: “When meatpackers own livestock, they bid less aggressively for the hogs and cattle produced by independent farmers. When supplies are short and prices are rising, they are able to stop buying livestock, which disrupts the market.”

Jay Platt, a third-generation rancher from the high desert of St. Johns, Arizona, says he has to take whatever offer he gets. “There’s not a negotiation to say, ‘I need another 2 cents more on these calves.’ You reject or take the bid.”

Some ranchers see this consolidation as a possible opportunity for those who are able to grow with it. University of California-Davis agricultural economist Tina Saitone says that many complex factors beside packer consolidation are fueling the rancher exodus. Packers who own their own cattle or use contracts rather than an open bidding process know that those cattle will be sold, Saitone says, as do the ranchers. “It’s not because the packers are somehow evil, but it’s economically efficient to do that.”

Nevertheless, R-CALF and similar groups want to chip away at the market power of the Big Four. Bullard says that ranchers currently have little legal recourse if they believe a meatpacker is intentionally disrupting the market. In 2009, Obama tried to remedy that. The Department of Agriculture took on more field investigators and auditors to regulate unfair practices. Mississippi cattle producer and attorney J. Dudley Butler was hired to head the Agriculture Department’s Grain Inspection Packers & Stockyards Administration (GIPSA), with the express purpose of holding Big Ag accountable. Butler worked with his staff to create a rule to clarify the 1921 Packers and Stockyards Act. It would have protected chicken farmers and allowed cattle producers to speak out about unfair practices by packers, without needing to prove harm to the industry as a whole.

In 2010, Secretary of Agriculture Tom Vilsack and U.S. Attorney General Eric Holder led five widely attended workshops nationwide to discuss antitrust issues in food and ag. Close to 2,000 people came to the Fort Collins, Colorado, event, including Bullard and Haynes, who say that many of the ranchers were anxious, yet cautiously optimistic that change was imminent. Holder told the crowd that he understood that packer consolidation was a “primary concern”: “Let me assure you that administration leaders ... understand that having a fair and competitive agricultural marketplace is critical.”

But Butler’s rule faced powerful opposition. Groups like the National Cattle-

men’s Beef Association and the North American Meat Institute, whose boards include meatpackers, called it “fatally flawed” and said it would create unnecessary lawsuits. Some rancher groups, including the Colorado Cattlemen’s Association, said prohibiting packers from selling to other packers would reduce competition instead of increase it.

In 2011, Big Ag’s congressional sup-

porter’s budget process.

Obama’s supporters are quick to point out that his administration followed through on creating a rule to crack down on anti-competitive practices, only to have Congress block it several years in a row. Yet if the rule doesn’t get implemented, again because of Congress, Obama will likely be remembered as failing on his grand promises for rural America.



Taylor Haynes, a cattle rancher from Laramie, Wyoming, speaks during a Fort Collins, Colorado, panel discussion on agriculture and antitrust issues in 2010. Haynes says he’s seen a number of small cattle operations go out of business because of Big Ag. ANDY CROSS / THE DENVER POST VIA GETTY IMAGES

porters included an amendment, or rider, with the appropriations bill that blocked the Department of Agriculture from implementing the majority of the GIPSA rule. “It was a battle we could have won had the leaders at the USDA and the White House had the intestinal fortitude to fight,” Butler says. In late 2011, he heard from Secretary Vilsack’s office that they were giving up. “I think they made a decision that there wasn’t enough political capital for the fight.” In 2012, Butler left the Ag Department and moved back to Mississippi. For the next four years, members of Congress used riders to thwart the majority of his rule.

THIS YEAR, RANCHERS SEE A GLIMMER OF HOPE: USDA is attempting to implement new GIPSA rules, including the one set out in December. The 2016 fiscal year appropriations bill didn’t include an anti-GIPSA rider, thanks to groups like R-CALF and the National Sustainable Agriculture Coalition, and senators like Jon Tester, D-Mont., and Jeff Merkley, D-Ore. It is unclear whether these “Farmer Fair Practices Rules” will survive in the long term; members of Congress like Maryland Republican Rep. Andy Harris, whose state has a \$1.5 billion poultry industry and who offered a rider to a House 2017 agriculture budget bill, could still block funding for the rules during next

Many Western ranchers now have their sights set on how to work with the next administration. In November, R-CALF leaders presented a plan they want President-elect Trump to use, which includes a GIPSA rule. They called the presentation “Making the U.S. Cattle Industry Great Again.”

“There’s a lot of hope for the Trump administration in rural America,” Haynes says. “(Trump) promised to renegotiate NAFTA and to fix trade deals.” Current trade agreements support imported beef from places like Latin America that competes with domestic products. He hopes the new president will follow through on his promises to change that, and also deal with market consolidation in meatpacking. Trump’s anti-establishment campaign made sense to Haynes. The cattleman’s distrust of the feds is manifest in his support for Nevada rancher Cliven Bundy’s battle with the Bureau of Land Management, and a recent run for Wyoming governor, where he was endorsed by the West’s most prominent Constitutional sheriff, Richard Mack of Arizona.

Even though Haynes doesn’t care much for Obama, he sees Congress as the ultimate culprit, beholden to the meatpacking industry and failing on GIPSA. “Our only hope,” Haynes says, “is for Congress to wake up.” TAY WILES

The cattle industry is “the last major livestock industry that has not yet been fully captured from birth to plate by the multinational corporations.”

—Bill Bullard, rancher and CEO of the Ranchers-Cattlemen Action Legal Fund

Notice to our advertisers: You can place classified ads with our online classified system. Visit <http://classifieds.hcn.org>. Jan. 3 is the deadline to place your print ad in the Jan. 23 issue. Call 800-311-5852, or e-mail advertising@hcn.org for help or information. For current rates and display ad options, visit hcn.org/advertising.

BUSINESS OPPORTUNITIES

Conservationist? Irrigable land? Stellar seed-saving NGO is available to serious partner. Package must include financial support. Details: <http://seeds.ojaidigital.net>.

Advertising is a great way to support High Country News and get your word out – Consider a classified ad in *HCN* when you have a conservation or green technology job to fill, a conference or special event coming up, a house to sell, unique home and garden products, professional services to promote, travel opportunities or any other information you would like to get out to like-minded people. Visit <http://classifieds.hcn.org> or call 800-311-5852.

CONFERENCES AND EVENTS

Mountain West Seed Summit – March 2-4, Santa Fe, N.M. www.rockymountainseeds.org.

EMPLOYMENT

Seasonal jobs with Canyonlands Field Institute – Now hiring apprentice naturalist guides, interns, camp cook, experienced river and land guides for 2017 season. www.cfmoab.org/employment/.

Center for Biological Diversity has several positions open. These include Digital Director, Forest Advocate for New Mexico and Arizona, Major Gifts Officer and a Media Specialist. Please apply online at biologicaldiversity.applicantpro.com/jobs/ to be considered.

Western Watersheds Project, California director – WWP seeks to expand and continue the campaign to protect and restore public lands in California and parts of Nevada, particularly in the context of reining in livestock grazing and related environmental problems. See website for job and application details. www.westernwatersheds.org/jobs.

Deputy Director – The National Center for Appropriate Technology (NCAT) is a private nonprofit organization whose work includes nationally recognized projects in food, agriculture and energy. The Deputy Director position will be located in NCAT's Headquarters Office in Butte, Mont. www.ncat.org.

Executive Director – The Conservation Lands Foundation seeks an experienced, visionary and strategic leader who will guide our team in advancing our mission in the critical next phase of our organization. Our new leader will have the opportunity to accomplish major, tangible conservation outcomes for the National Conservation Lands. Visit this link for complete job description and necessary qualifications: conservationlands.org/clf-job-announcement-executive-director.



Collaboration and policy coordinator course instructor – Work closely with education team to develop and teach experiential, integrated college-level course curriculum. www.SwanValleyConnections.org.

Project Assistant Arizona Land and Water Trust alwt.org/misc/employment.shtml.

CONSERVATION DIRECTOR – apply@wildearthguardians.org. www.wildearthguardians.org.

Desert Rivers Program Manager Arizona Land and Water Trust. www.alwt.org/misc/employment.shtml.

Ecological Monitoring Program Coordinator – 775-674-5486 agladding@thegreatbasininstitute.org <http://crcareers.thegreatbasininstitute.org/careers/careers.aspx?rf=HCN&req=2016-RAP-129>.

General manager, KDNK Community Radio – board@kdnk.org. kdnk.org/post/kdnk-hiring-general-manager.

Executive Director – GOCO
GOCO invests a portion of Colorado Lottery proceeds to help preserve and enhance the state's parks, trails, wildlife, rivers and open spaces. GOCO's Board of Trustees now seeks an Executive Director to direct the effective stewardship of this unique, important state resource. Detailed job responsibilities and qualifications can be found at our website: www.goco.org. To apply, send a cover letter, résumé, and salary requirements to Carolyn McCormick of Peak HR Consulting, LLC at Carolyn.McCormick@peakhrconsulting.com. EOE.

Ecological Monitoring Program Director – 775-674-5486 agladding@thegreatbasininstitute.org <http://crcareers.thegreatbasininstitute.org/careers/careers.aspx?rf=HCN&req=2016-RAP-106>.

The Ideal Location for your Enchanted Autumn Getaway - in the Heart of Historic Downtown

MURRAY HOTEL

Art Deco Elegance with Modern Comfort

- Enjoy our perfect autumn days - clear, crisp and colorful
- Relax in our newly renovated guest rooms and suites
- Savor an eclectic variety of fine dining, galleries, specialty shops, museums, nature trails and more - all within walking distance



200 W Broadway Street
Corner of Texas and Broadway

575.956.9400
www.murray-hotel.com



TOM BIHN
SINCE 1972 - MADE IN U.S.A.

Development Director – The Central Colorado Conservancy in Salida, Colo., is looking for a part-time Development Director to grow the organization and raise funds needed to carry out the Conservancy's strategic plan. A full job description is available at <http://centralcoloradoconservancy.org/employment/>. Send a cover letter, résumé, and references to andrew@centralcoloradoconservancy.org.

PROFESSIONAL SERVICES

Wildland Fire Services – Planning, reviews, litigation, www.blackbull-wildfire.com.

Expert land steward – Available now for site conservator, property manager. View résumé at: <http://skills.ojaidigital.net>.

REAL ESTATE FOR SALE

www.GreenHomesForSale.com – The premium venue for buying and selling green and energy-efficient homes since 2004.

Horse and farm acreage with views, possible to subdivide – 9.55 acres with eight acre-feet of water rights and animal rights in rural paradise of Enoch, Utah. Utilities close by, sewer on property. Hilltop with 360-degree views! Investment opportunity! 435-592-2507. TammyVogt.ut@gmail.com.

Best views in southern Utah! Hilltop home on 5.85 acres. 360-degree views, year-round home or retreat. Sunrise and

sunset views, quality construction and lots of extras, including 5,348 square feet and 1,776-square-foot workshop, plus decks and patios. Contact Tammy today! 435-592-2507, TammyVogt.UT@gmail.com.

200 acres with clean water – Orangeburg, S.C. Artesian wells, springs; running streams. Ten-acre pond; natural ecosystem. Protected from major storms year-round. Unlimited possibilities: Solar power income potential, equestrian sports; specialty farming; retreat; winery; fishing and hunting. Utilities available. Close to major cities, horse and golf events. Seven miles to nearest airport. Contact Janet Loder, 425-922-5959. janetloder@cablespeed.com.

TOURS AND TRAVEL

EXPERIENCE COPPER CANYON, MEXICO 10-day package from Los Mochis Airport. Four nights hotel, five nights camping/hiking with burro support. From \$2,000 per person. www.coppercanyontrails.org, 520-324-0209.

What will you discover? Southwest tours led by archaeologists and American Indian scholars. Archaeology digs in Mesa Verde Country. Crow Canyon Archaeological Center. www.crowcanyon.org. 800-422-8975.

Coming to Tucson? Popular vacation house, everything furnished. Rent by day, week, month. Two-bedroom, one bath. Large enclosed yards. Dog-friendly. Contact Lee at cloler@cox.net or 520-791-9246.

Stay and explore beautiful Crestone, Colo., and Great Sand Dunes National Park – Nestled near the foothills of the Sangre de Cristo Mountains, Starbright Retreat House is the perfect vacation rental house to stay in while exploring the San Luis Valley. www.starbrightretreathouse.com.

UNIVERSITIES AND SCHOOLS

Get High Country News for FREE in your classroom! Help your students unravel the complex issues facing the American West with this tremendous resource. The HCN Classroom Program gives FREE magazines and/or digital access to instructors and students. Sign up at hcn.org/edu.



Mountain West Seed Summit
Honoring Origins and Seeding the Future
March 3-4, 2017 + Hotel Santa Fe + Santa Fe, NM
Register now! \$150 Early Bird
\$195 after January 1
Tesuque Pueblo Farm and Seed Bank
Field Trip — March 2 \$65
RockyMountainSeeds.org



LIZARD HEAD CYCLING GUIDES
This holiday season, why not give yourself and those most important to you the gift of active travel?
GLACIER NATIONAL PARK YELLOWSTONE
THE CASCADES • HATCHEZ TRACE
SHENDANDOAH • NOVA SCOTIA
CALIFORNIA • TRANS-UTAH MTB
Register before January 15th using promo code HCN to save \$200 per person. Not sure which trip to do yet? No worries! You can still get in on this offer. Place your deposit before January 15 and pick your trip later.
info@lizardheadcyclingguides.com
970.728.5891

Thank you to our 2016 advertisers.

In our 46th year, we have been sustained again by our incredibly loyal readers and advertisers.

Thank you for making *High Country News* part of your life!

Absaroka-Beartooth Wilderness Foundation • Active Adventures • Adelaide Merkle • Adventure Bound USA • Altai Skis • Amazing Earthfest • Apogee Mapping, Inc. • Aqua Indigo, LLC • Arcadia Power • ARTA River Trips • Aspen Center for Environmental Studies (ACES) • Association of American University Presses • Babbitt Ranches • Back of Beyond Books • Baja's Frontier Tours • Beaver Ponds Environmental Education Center • Black Bull Wildfire Services • Blue Heron Pottery & Sculpture • Boise State University • CA Williams • California Environmental Associates (CEA) • California Trail Interpretive Center • CamelBak Products, LLC • Canyonlands Field Institute • Cascade Mountain School • Caxton Press • Center for Biological Diversity • Central Washington University • Colorado Open Lands • Colorado State University-Dept. of Political Science • Copper City Inn • Copy Copy • Cottonwood Gulch • Crestone Performances, Inc. • Crow Canyon Archaeological Center • Defenders of Wildlife • Delta County Tourism Board • Desert River Outfitters • Don Mayer • Dropstone Outfitting, LLC • Duke University-Nicholas School of the Environment • Ecologistics • Ellen Meloy Fund • ERO Resources • Escalante Canyons Art Festival • Feather River Community College • Flag Wool and Fiber • Four Corners School of Outdoor Education • Freedom Ranger Hatchery, Inc. • Fundcraft Print Group • George F. Thompson Publishing • Ghost Ranch Education and Retreat Center • Gila Conservation Coalition • Goddard Spiral Stairs • Gourmet Mushroom • Grand Canyon Resort Corporation • Grand Canyon Trust • Great Basin Society • Great Old Broads for Wilderness • Great Southwest Adventures • Green Singles • Hapax Press • Heard Museum • Heyday Books • Hidden Valley Inn and Reserve • Hill Country Alliance • Hughes River Expeditions • Idaho Conservation League • Island Press • Jackson Hole Land Trust • James Anderson • Janet Loder • John S. Knight Journalism Fellowships • Ken Sanders Rare Books, ABAA • Kinship Foundation • KUSA Seed Research Foundation • Lee Oler • Lizard Head Cycling Guides • Loch Lomond Guides • Lorenz Schaller • Lunatec Gear • Luxury Adventure Trips • Madeline Hotel & Residences • Margo Clark • Maria's Bookshop • Marja Smets • Marjane Ambler • Meeker Classic Sheepdog/Cattledog • Melanzana Outdoor Clothing • Mesa State College/Colorado Mesa University • Mike Hiler • Montana Wilderness Association • Mountain Press Publishing Company • Murray Hotel, LLC • National Bighorn Sheep Interpretive Center • Native American Advocacy Program • Nature & Words • Nature Conservancy/CO-Boulder • Nelson Institute for Environmental Studies • New Belgium Brewing • North Cascades Institute • Northern Arizona University • Oregon State University Press • Oregonauthor.com • Patricia Green • Point Reyes Schoolhouse Lodging • Powder River Basin Resource Council • Prescott College • Quivira Coalition • Rae Marie Taylor • Rogue Industries • ROW Adventures • Sanctuary Forest • Sand Creek Post and Beam • Seeds Trust • Shelton Capital Management • Sherry D. Oaks, Ph.D. • SHIFT Festival • Sonoran Institute • Sorensen's Resort • Southeast Alaska Conservation Council • Southern Nevada Water Authority • SRI Conference • Steve Paulson • Sturtevant Camp • Texas Tech University • The Backcountry Llama • The Friends of the Missouri Breaks Monument • The Oil Solution • The RiverWind Foundation • Tight Lines, Inc. • Tom Bihn • Torrey House Press • University of Calgary Press • University of Idaho • University of Michigan • University of Montana-Environmental Studies Program • University of Utah Press • University of Washington Press • University of Wyoming-ENR/Haub School/Ruckelshaus Institute • University of Oregon School of Law • Utah Conservation Corps • Vermont Law School • Vibrant Lands Institute • Wallace Stegner Center • Waterston Desert Writing Prize • Welfelt Fabrication, Inc. • Western Landowners Alliance • Western State College • Wild Bear Adventures • Wild Rockies Field Institute • Wilderness Canyon Adventures • Wilderness Land Trust • Wilderness Volunteers • Wolf Haven International • Wolf Tracker • Wyoming Outdoor Council • Wyoming Public Media • Wyoming Untrapped • Yellowstone Association • Yellowstone Insight/MacNeil Lyons Guiding, LLC • Zion Canyon Field Institute

There's a way to keep independent bookstores alive



OPINION BY
CARRIE LA SEUR

It's early October, and I'm at the High Plains Book Festival at the art museum in Billings, Montana, selling books as fast as I can handle the slippery credit card reader. My own books are on the table with those of other regional authors and friends. Stacks of books pass to people I've known for years.

Everyone involved is smiling, giddy to see books selling like — well, like books — in downtown Billings. In the last six months, several hundred locals and some more distant friends have bought \$100 shares, or made larger investments, to become co-owners of This House of Books, our new indie bookstore. Author-owners include Craig Johnson of *Longmire* fame, and Jamie Ford, author of the bestseller *The Hotel on the Corner of Bitter and Sweet*.

Back in 2011 and 2012, Billings lost its Borders, and then, more painfully, Thomas Books, the locally owned downtown bookstore we'd loved for 20 years. Many of us felt as if we'd somehow failed our bookstores, but both stores were profitable. What killed them was the corporate bookselling model, which demands ever-higher profits, and the exhausting burden of running a sole-proprietor shop.

There are still a few niche and used bookstores in town that serve their purposes wonderfully. We have Barnes & Noble and Costco and Target, but to anyone who values a bookstore as an expression of a town's soul — full of books chosen by a bookseller we know — they are no substitute.

Writers and readers got together and moped into our beer about this sad development. We felt like a house without a cat or dog; how could we claim title to being the lively literary community we knew we were? And yet there were encouraging signs: Around this time, voters approved funding for a new downtown library, the book festival began taking off, and suddenly, we had enough local authors for a good-sized party. All we needed was a bookstore.

If you've never experienced the way a great bookstore can accelerate time, so that two hours have passed and you're sitting on the floor with books in your lap wondering what happened, you might find it hard to understand how we felt. But a lot of us need to get lost in rows of new books. We need to hear authors read and speak, and we love to talk about ideas.

For a year or so, all we did was mutter and complain. No one was eager to throw down a life's savings and give up

all semblance of a normal life to start a bookstore. In some places, this might have been the end of it, but you have to remember where we live. Billings made national headlines in the 1990s for its vigorous pushback against hate groups and white supremacists. This is not a community that walks away from existential challenges — the pro-diversity "Not In Our Town" movement started here.

At some point, former Billings Mayor

House of Books opening its doors in October 2016. Volunteers wrote a business plan, formed the cooperative, began selling shares and hired a general manager.

We had good advice from booksellers around Montana, and member-owners volunteered hundreds of hours building out the 3,000 square-foot space. In a critical step toward sustainability, staffers are now paid for their work. The bookstore features cushy chairs, a tea bar and good lighting, and member-picked



Chuck Tooley, of the Not In Our Town era, wondered aloud if a cooperative would work. Someone Googled it. Co-ops are special beasts. There are cooperatives for farmers selling grain and co-ops that sell electricity to rural residents. There are also retail varieties, such as food co-ops. Montana has a robust cooperative movement with staff to support new co-ops, so we kept researching.

So why can't bookstores be co-ops? Actually, they already exist, with the Harvard Co-op Bookstore being one of the best known. The key is common ownership. When we made a decision to form what we called the Billings Bookstore Cooperative, we gambled that Billings would be willing to spend money, not just on books, but on owning a little piece of a bookstore, in exchange for discounts and dividends.

Oh, the magic of being right, as townspeople stepped up. So began the slow-motion movement that led to This

books line the shelves — my definition of paradise.

This is a happy story, not just for Billings, but also for brick-and-mortar bookstores in general. In the wake of the Amazon and e-book revolutions, people have begun seeking a more personal experience, a trend that is reshaping the marketplace. The secret sauce is a bookstore that answers only to its community. It refreshes the human spirit in a fundamental way. This House of Books is that kind of gift, from the people to the people. □

Carrie La Seur is a writer in Billings, Montana.

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

People browse the books and board games at This House of Books in Billings, Montana.

BRONTE WITTPENN/
BILLINGS GAZETTE

WEB EXTRA

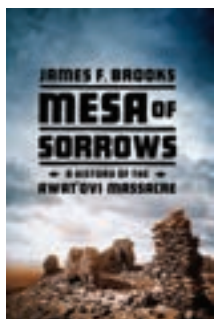
To see all the current Writers on the Range columns, and archives, visit hcn.org

The Awat'ovi ruins in Arizona, circa 1915. The Hopi town was completely destroyed in 1700 by neighboring Hopi.

PALACE OF THE GOVERNORS
PHOTO ARCHIVES (NMHM/
DCA), NEGATIVE NO. 029947



A narrative of violence



Mesa of Sorrows:
A History of the
Awat'ovi Massacre
James F. Brooks
288 pages, hardcover:
\$26.95.
W.W. Norton &
Company, 2016.

In *Mesa of Sorrows: A History of the Awat'ovi Massacre*, historian James F. Brooks takes an in-depth look at the destruction of a large Hopi village by neighboring Hopis in 1700. In the first chapter, Brooks wonders, “What provoked such gruesome internecine violence?”

The violence at the heart of the book is mentioned briefly in Spanish accounts, but it is remembered more richly in Hopi oral stories handed down from generation to generation. Brooks’ challenge in *Mesa of Sorrows* is to integrate an unwritten history within a discipline that has traditionally privileged written records.

Brooks opens with a lyrical account, à la Western outdoor writer Craig Childs, of a personal journey he made to the ruins of Awat'ovi in northeast Arizona, a settlement first visited by Coronado’s soldiers in 1540. Once an important Hopi village, Awat'ovi was suddenly depopulated in the fall of 1700. After the opening travelogue, Brooks tells us what happened to it. Awat'ovi had been more receptive to Roman Catholicism than its neighbors (as evidenced by its Navajo name, Tallahogan, or “singing house”).

When the village appeared on the brink of becoming a toehold for Franciscan missionaries and the Spanish colonizers who would follow in their wake, a coalition of other villages attacked. Warriors trapped the men of Awat'ovi in their underground kivas and set the chambers ablaze with torches, tossing in ristras of chile peppers — a hallmark of the Spanish influence in Awat'ovi. Some survivors were tortured and killed, and the rest were scattered among other Hopi villages. The attack was horrific, but it

succeeded in minimizing the Spanish presence in Hopi for generations.

The site of Awat'ovi attracted wide attention in the 1930s and '40s, when excavations by Harvard’s Peabody Expedition uncovered dazzling murals painted on subterranean kiva walls. But the Harvard dig also found evidence of the village’s tragic end. Unburied bodies and kivas filled with charred wood seemed to confirm the grim oral stories that the Hopis told about Awat'ovi.

If Brooks had been an Anglo historian from an earlier generation, *Mesa of Sorrows* would likely have focused on archaeological findings and Spanish documents to reconstruct the demise of Awat'ovi. But Brooks attempts a more progressive approach by grounding his work in Hopi cultural memory.

For example, in a chapter about the migration of Rio Grande Pueblo groups to Hopi, the author seamlessly blends information from Spanish documents and modern scholarship with accounts from Hopi storytellers and traditional clan histories. Brooks’ melding of Native American sources with conventional written history feels natural, and his treatment of Native cultural memory brings it closer to where it belongs — on a more equal footing with the written past.

While the author’s use of Hopi stories is a step in the right direction, in other ways *Mesa of Sorrows* hews to an earlier tradition of historical writing. Brooks, for example, relies exclusively on previously published Hopi stories, which contributes to a sense that the Native tradition has been picked apart and reassembled to suit the author’s interpretation. He

also chose not to collaborate with the Hopi Cultural Preservation Office while preparing the book. He writes at the beginning that *Mesa of Sorrows* will be “one author’s journey into a distant time and enigmatic event.” But that’s just the problem: The book threatens to become the story of the writer’s personal journey rather than that of the culture he seeks to understand.

Mesa of Sorrows might be at its best when illuminating life in the Pueblo world during the first two centuries of European contact. Brooks successfully conveys a sense of the disruption created by the introduction of European technologies, crops and livestock. For example, the horse transformed warfare in the Southwest around the time of Awat'ovi’s destruction. The Hopis, farmers who generally avoided war, faced increasing threats from Spanish soldiers and newly horsed tribes like the Utes, Navajos and Apaches. *Mesa* vividly portrays a chaotic time when relationships in the Hopi world were being strained by the rapidly changing conditions.

Brooks’ greatest success lies in the way he weaves the rich oral and written history into a single cohesive narrative. The book is an argument for authors of Western history to take Native cultural memory seriously. But in *Mesa of Sorrows*, there is still an unresolved conflict between the author’s desire to write “one man’s journey” and explain Awat'ovi from the Hopi perspective. The tension here suggests that bringing together Native and European approaches to history is still not an easy task.

BY SCOTT SHUMAKER

Right holiday, wrong bird

BY MICHAEL BAUGHMAN

Many years ago, a friend stopped by my house to invite my family and me over for Thanksgiving dinner. We stood on my front porch on a clear, cool October day and discussed which wines to serve. Then I asked Henry what the main course would be. “Wild turkey!” he said.

I was skeptical. Henry had grown up in Queens but now lived alone in a rented cabin deep in the woods, miles from town. Southern Oregon was a new and exciting world to him, one that he said he loved very much. Since his arrival in midsummer, he had spent much of his free time gathering edible plants and berries and trying to learn to hunt and fish — “becoming a genuine Westerner,” as he put it, “learning to live off the land.”

I’d taken him fishing three or four times to the Rogue River, where he happily landed a few previously stocked trout. Because he was determined to hunt upland birds, I’d also lent him a single-shot 20-gauge shotgun, showing him how it worked, and teaching him how to avoid killing himself or anybody else with it. Henry believed that his dog, Ahab, would help him find birds, but Ahab was a friendly, untrained mutt from Queens. Though I thought it was next to hopeless, I pointed out areas not far from Henry’s cabin where blue grouse often fed on elderberries in the fall, and — so that he could recognize a grouse if he was lucky enough to see one — I bought him an illustrated paperback bird book at a used book store. If he ever did come across a grouse and recognize it before it flushed, I figured his odds at hitting it in flight at no better than 1,000 to 1.

Turkey? I thought. “Really?” I asked. “Damn right! It’s in the freezer!”

“Where’d you get it?”

“Up on the top of that hill where the elderberries are, where you told me the grouse hang out. But a turkey’s way better than any grouse! That’s what I’m serving, the turkey! We’ll be like the Pilgrims! It’ll be a real holiday meal!”

In those days, I ran between 60 and 100 miles per week and was always hungry, and I regarded Thanksgiving Day as my annual marathon of eating. So to get in shape for this Thanksgiving I skipped breakfast, ran 10 miles, and then skipped lunch.

Henry served us dinner. The roasted turkey was oddly shaped and remarkably small, and when he carved it, the meat looked too dark to be turkey. But I was as famished as I’d ever been and, as always after a run, my body craved protein. So I took a rash and impolite first bite. Never in my life had I tasted anything so vile. Unable to swallow, I spit that mouthful onto my plate.

Everyone at the table stared at me, Henry with his head tilted to one side, as if bracing an invisible telephone against his ear. No one spoke. I took a long swallow of the Riesling, both to cleanse my mouth and buy some time. “I don’t think this is a turkey,” I said at last. “I’m sorry to say so, but it can’t be.”

An uncomfortable discussion followed. Henry admitted he had shot the bird off the top of a tall dead Douglas fir. We consulted the illustrated bird book, and he reluctantly acknowledged that the creature on the platter was not a turkey;

it was a turkey vulture. The mistake was understandable; the vulture’s naked red head clearly resembles that of a wild turkey, hence the name. Unfortunately, a bird’s flavor is largely determined by its diet — in this case dead and often decomposing flesh along with internal organs, feces included — so the foul taste was inevitable.

Despite the way they taste, I respect turkey vultures. They are splendid creatures, a species that kills nothing and fulfills its crucial ecological niche to perfection. On summer afternoons, I love to spend the lazy hours watching them from our house on a hill in the Bear Creek Valley. Circling and soaring on inverted wings, using thermal updrafts, as graceful as any bird that flies, they experience a wild freedom that no earthbound creature can know. And high in the sky, far from a dinner plate, is exactly where they belong.

With the meal now a vegetarian one, we did our best to have a happy Thanksgiving.

Before the year was over, Henry gave up hunting and fishing. Over the next couple of years, he embraced diverse passions: a macrobiotic diet, landscape painting, taekwondo, growing weed, as in marijuana. Finally, he and Ahab returned to Queens. I think they will be happy there. □

Michael Baughman writes and runs in Ashland, Oregon. His most recent book is a novel titled Grower’s Market.

A turkey vulture picks at a skull.

GUNNAR FREYR STEINSSON/
ALAMY STOCK PHOTO





HEARD AROUND THE WEST | BY BETSY MARSTON

THE WEST

Messy truck spills for the year 2016 were mapped by an innovative website called Atlasobscura.com, and the West hosted quite a few outstanding mishaps. In Utah, dozens of live pigs were “launched” onto the road near St. George, and in Colorado, 60,000 pounds of expired Miller Genuine Draft beer “almost flew out of the side” of a semi-truck onto Interstate 70. In Montana, 30,000 pounds of used cooking grease and 200 gallons of fuel splashed all over a road near Helena, while in Whitewater, California, an August accident resulted in \$5,000 worth of ice cream melting rapidly on the hot black asphalt. In Washington, 27 tons of chicken manure sent cars skidding until workers could clean up the mess and sand the road, while a frozen food truck near Burns, Oregon, literally spilled the beans after a train rammed it from the back. A crash on Interstate 25 in New Mexico exploded a full load of soda “out of the front of the tractor trailer.” But Mesa, Arizona, takes the cake, or maybe the caca, for a “putrid scene.” After a truck transporting Porta-potties and a septic tank full of human waste crashed and rolled over, a mess of nasty liquids got sloshed all over the road. If only a tractor-trailer carrying 29,000 pounds of toilet paper and paper towels had happened by! And in fact there was an accident that dumped those very paper products on the highway. Unfortunately, it happened too far away to help; the paper products were spilled near Elk Grove, California, after a tractor-trailer hydroplaned and crashed.

NEW MEXICO

It happened during an executive session about a proposed rate increase, so we may never know what triggered the fisticuffs in the Taos boardroom of the Kit Carson Electric Cooperative. But a disagreement became so heated that two elected representatives took it out into the hall, reports the *Albuquerque Tribune*. Then things really got hot. Virgil Martinez, 62, who had reportedly yelled, “I will kill him!” during the meeting, received a bloody lip, nosebleed and



CALIFORNIA Someday, the start of “Anthropocene Park.” JOHN FERRARA

black eye, while Chris Duran, 44, suffered injuries after two religious medals were ripped from his neck. In an email afterward, board member Bob Bresnahan said the chaotic scene left everyone else there “in shock.”

THE WEST

Before we end 2016, we’d like to share some of the year’s best quotations, about everything from polar bears befriending dogs to the difference between God and the Forest Service.

Utah Republican Gov. Gary Herbert told the *Salt Lake Tribune* that he didn’t think that a new registry for refugees was drastically needed. The Beehive State has taken in over 1,000 refugees since last February, and as Herbert put it: “They’re not the terrorists, they’re the ones running from terrorism.”

In *The New York Times* recently, Timothy Egan reprised a choice remark about our nation’s faithless relationship with Native Americans: “Consider how Jon Stewart once described the national holiday just passed. ‘I celebrated Thanksgiving in an old-fashioned way. I invited everyone in my neighborhood to my house, we had an enormous feast, and then I killed them and took their land.’”

Also on a holiday note, Grand Canyon educator Marjorie “Slim” Woodruff tells us that she’s spent the last 20 Christmases at Phantom Ranch, at the bottom of Grand Canyon on the Colorado River. When a friend asked if she should take her 8-year-old son down the 9.3-mile-long Bright Angel Trail this winter, Slim says, “I told her I started taking my son when he was 4. But he never comes home for Christmas any more, so she could make of that what she wished.”

In Texas, Craigslist helped a house-trained bison named Bullet find a new home, reports the *Dallas Morning News*. Karen Schoeve, a court reporter, said her 1,100-pound pet had a great personality and acted more like a dog than a bison. What’s more, “She’s hardy, unlike those sissy longhorns.” Sold for \$5,950, Bullet now lives in a pasture with two cows for companionship.

A video of a chained-up polar bear in Canada petting a friendly dog went viral. This was probably unfortunate, said wildlife biologist Tom Smith in the *Washington Post*, as it might give viewers the wrong impression about how this budding relationship is likely to end. “To me, it’s like trying to see if the food’s ready or not. It’s not surprising that it would try to explore this dog ... but I guarantee if you left that bear there long enough, it would say, ‘I wonder what this dog tastes like?’ I’d be sorely disappointed in a bear that didn’t ultimately eat that dog.”

And in *Colorado Central Magazine*, John Mattingly recalled an old saw about a government agency frequently accused of hubris: “The difference between God and the Forest Service is that God does not think she is the Forest Service.”

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.



High
Country
News

For people who care about the West.

High Country News covers the important issues and stories that are unique to the American West with a magazine, a weekly column service, books and a website, hcn.org. For editorial comments or questions, write High Country News, P.O. Box 1090, Paonia, CO 81428 or editor@hcn.org, or call 970-527-4898.

“Wild fish tend to fight with the remarkable strength developed through their difficult natural lives. Hatched in streams, they face a vigorous struggle from the very beginning.”

Michael Baughman, in his essay, “An argument against fish hatcheries,” from *Writers on the Range*, hcn.org/wotr