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High Country News
For people who care about the West

Clean Energy's Dirty Secret

By Judith Lewis Mernit

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CONTENTS

Doug Bell of the East Bay Regional Park District, in a 2007 photo with a golden eagle found near turbines in California's Altamont Pass Wind Resource Area. The raptor, which had a compound wing fracture, later was euthanized. JANICE GAN PHOTO COURTESY EAST BAY REGIONAL PARK DISTRICT

On the cover

A golden eagle flies by a 100 KW wind turbine on Altamont Pass near Livermore, California.
COURTESY SHAWN SMALLWOOD

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Editor's note

Wild collisions

Driving in the rural West is a blood sport. During the spring and summer, it's all I can do to avoid squashing the prairie dogs and rabbits drawn to the weeds along the asphalt, as they invariably dart the wrong way at the last moment. Almost every day I encounter the fresh carcass of a skunk, fox or raccoon, mowed down the night before by unsuspecting drivers. ("What was that thump?")

In fall and winter, it's deer and elk, pushed down from the high country by hunters and changing weather. Somehow I've avoided a head-on collision, but I once clipped a muley's back foot as it bounded like a high-jumper over the hood. Last week, a small flock of mountain bluebirds swooped in front of my truck as I drove to the grocery store. I braked, hoping they had all somehow eluded my grill. But in the rearview mirror, I watched a sky-colored male tumble like a ball across the road. "Damn it," I muttered, "another 'incidental take.' "

That's the formal term wildlife agencies use for cases in which a protected wild animal is unintentionally killed. From a legal standpoint, it means that I, and all the other drivers on the road, will be pardoned; we have no liability if we collide with, and kill, a species of federally protected frog — or a grizzly, for that matter. After all, we didn't mean to do it.

But should large industrial developers get off the hook so easily, especially if scientists clearly show that their business practices are killing wildlife? That's one of the questions raised by Judith Lewis Mernit's cover story on how some determined ecologists are seeking to hold large-scale Western wind and solar facilities responsible for the birds they attract and kill. Over the past several decades, ecologist Shawn Smallwood has single-mindedly researched such avian deaths. The results are disquieting, not only because they demonstrate the considerable environmental trade-offs we are making for the sake of clean power, but because of the way some in the industry reacted to his findings — with disinformation campaigns and personal attacks.

Just shoot the messenger: It's an often-used page from the playbook of many extractive industries. But it doesn't have to be that way. Smallwood's efforts have actually helped the wind industry; despite its initial resistance, it's now embracing large, slow-turning turbine blades and careful site selection to minimize the carnage. It's high time for Big Solar and its state and federal regulators to do the same, before any new plans are approved in the Mojave Desert.

No one is entirely guilt-free when it comes to the "incidental taking" of wildlife. But we can reduce the carnage, partly by reducing our consumption of energy, or producing our own, so that new power plants are unnecessary. And we can also just slow the hell down as we drive the West's marvelous back roads.

–Paul Larmer, executive director/publisher

A woman is evicted from an encampment along Los Gatos Creek, in downtown San Jose. JEREMY MILLER

No direction home

In March 2014, a California Department of Fish and Wildlife warden in San Jose filed a formal complaint with regional water authorities, citing heaps of garbage and human waste from large homeless camps along city waterways. The environmental group Baykeeper sued the city later that year over the camps, whose refuse endangered public health and flagging runs of steelhead and chinook salmon. For the first time, homelessness in Santa Clara County was no longer framed as just an intractable social problem; it had become a clear environmental threat. Today, nearly a year after the main camp, known as the Jungle, was closed, thousands remain homeless, wandering city streets and streambeds. Many residents wonder whether Santa Clara County jumped the gun, forcing homeless people out of camps before giving them somewhere else to go. **JEREMY MILLER**

hcne.ws/CAhomeless

8,000

The number of domestic sheep grazed on seven allotments in the Beaverhead-Deerlodge National Forest, where environmental groups are suing to reduce grazing.

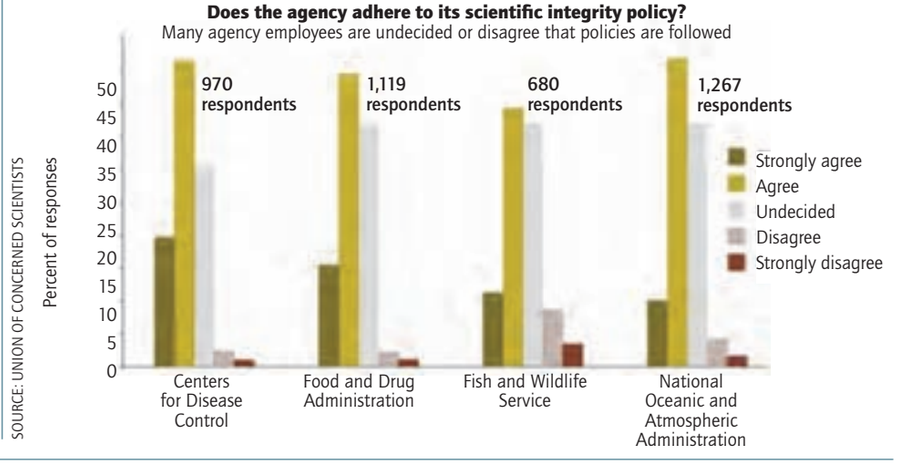
35

The number of bighorn sheep in one herd in the same forest — well under the 125 needed for a viable herd.

Environmental groups say that Montana's efforts to recover bighorns are jeopardized by domestic sheep, which pass pneumonia to their wild kin. Their lawsuit charges that the Beaverhead-Deerlodge didn't provide for a viable population of bighorn sheep in its forest plan, and didn't disclose a semi-secret deal promising not to change sheep ranchers' grazing allotments. A judge ruled in July that one more grazing season wouldn't cause "irreparable harm" to wildlife, and the sheep headed into the hills once again, but the lawsuit is still pending. Conservation groups approached the ranchers about buying out their allotments, but the ranchers rejected the proposal. What happens next is anyone's guess. **BEN GOLDFARB** hcne.ws/sheep-wars

Fish and Wildlife and integrity

According to a new survey and report compiled by the Union of Concerned Scientists, 73 percent of U.S. Fish and Wildlife scientists say that political influence is too high at the agency, while a relative majority believes their office is less effective than it was five years ago. Those figures stand out at Fish and Wildlife, compared with other federal science agencies, where staff members generally feel that scientific integrity is holding firm or is on the rise. During his first inauguration speech in 2009, President Barack Obama pledged to "restore science to its rightful place," and later ordered agencies to draft scientific integrity policies for the first time ever. Those were welcome steps for researchers who felt politics trampled science-based management under the George W. Bush administration. Still, the implementation and effectiveness of the new policies remain fuzzy. **JOSHUA ZAFFOS** hcne.ws/political-usfws



174

The number of people killed in mass shootings — incidents involving four fatalities or more — in Western states since 1982.

KATE SCHIMEL

hcne.ws/shooting-nos

Video

Worth of Water: Fresno

California is in its fourth year of severe drought. In 2014, Gov. Jerry Brown passed the Sustainable Groundwater Management Act, the first statewide effort to regulate groundwater use. In this video, we hear from water experts, who discuss the invisible costs of the dry spell and what the city of Fresno is doing to recharge its groundwater reserves and develop infrastructure for surface water use. **ZOE MEYERS**

hcne.ws/CAgroundwater

ZOE MEYERS

Trending

'Rental crisis'

Tent cities, waste and overcrowding have created something foul in Crested Butte. Each year, thousands of tourists flock to the mountain resort town on Colorado's Western Slope. This July saw more people recreating in and around town than ever, and there aren't enough houses for the town's low-wage workers to rent. Across the Rockies, when the recession ended, second homeowners bought up property to rent out to vacationers, leaving the booming local workforce short on places to live. **GLORIA DICKIE**

You say

JERRY CAGLE: "The same thing is happening in Gardiner, Montana, apparently. I understand that a number of employees of the Yellowstone Association are unable to find housing, or to afford the rent if they could, and are thus reduced to living in their cars. A testament to their dedication, but a sad situation, indeed."

BONITA GIBSON CREMER: "I own rental property in an area of Montana popular with fishermen and hunters, but not a resort community. I will no longer offer my property as long-term rentals, due to the hassle of finding quality tenants who won't destroy the place and who pay rent on time. Much more sensible to rent to vacationers: Considerably less 'wear and tear' and premium rent paid upfront."

DUSTY DEMERSON: "Well, rents have risen and wages have not. Rents for retailers have risen, too. It's a pretty tough squeeze. Not sure what the answer is, but pushing people into the camping areas is not the answer."

hcne.ws/rental-crisis and facebook.com/highcountrynews

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

SHOUT-OUT TO HEYDAY PRESS

I was particularly touched by the article in the September issue regarding the California Maidu Indians' recovery of their land, though as I continued through the various articles I was surprised that I didn't find any reference to Heyday Press of Berkeley, California, and Malcolm Margolin, the publisher ("The Exact Same Place," *HCN*, 9/14/15). Malcolm and Heyday are among the great defenders of the environment and especially the rights and cultures of the California Native peoples. This year marks the retirement of Malcolm Margolin after 40 years at Heyday. *HCN* needs to commemorate this incredible man and his career.

Dennis Judd
San Luis Obispo, California

MILT PRIGGEE/CAGLECARTOONS.COM

TOXIC MINING LEGACY, PART I

Aug. 6, 2015, was the 70th anniversary of the atomic bombing of Hiroshima, and also the day the Gold King Mine above Silverton, Colorado, spewed a buildup of toxic mining waters into the Animas River flowing through bucolic Durango ("Animas spill," *HCN*, 8/31/15). I am a gold-miner's daughter. I moved to Durango in 1985 and completed a geology 101 class while pondering the idea of working with my father in California as a geologist. The takeaway from that course was that what I had thought of mining from my experiences as a child, panning for gold or pulling shiny flakes off the walls in the huge ventilated tunnels that my father had set up, was that gold mining today was a really destructive business.

I lived in and out of Durango for nearly 10 years and landed in the Sierra Foothills in 1997, the other toxic area, the Sierra Nevada Gold Country. I have just finished chelating extremely high levels of mercury and lead from my bloodstream, and because I was tested properly I had an opportunity to do something about it. In two years' time, I turned around a destiny of disability. Many neurodegenerative diseases (Parkinson's, ALS, multiple sclerosis) are thought to be caused by high toxic burdens that turn on genetic predisposition to these otherwise "rare" or "mystery" conditions, and inhibit our innate detoxification systems.

We have to acknowledge the legacy of mining pollution, have conversations about it, and take responsibility for improved testing of waters, soil, air and our bodies, and clean up what we can, detox what we can, so we can protect ourselves, our children, and all life on this planet in the future. Gold King Mine *is* a Superfund site. Let's declare it and get the aggressive resources needed to stop this never-ending pollution.

Liana Dicus
Mammoth Lakes, California

TOXIC MINING LEGACY, PART II

Although I now live in Portland, Oregon, I have followed the Animas River mine drainage spill issue with extreme interest, because I spent several years studying water quality issues related to mine drainage in Colorado in the 1970s. Jonathan Thompson's article provides the most complete description of the incident that I've read or heard (including anything on NPR), and it is the first to point out that the real culprit in this tragedy is Colorado's legacy of abandoned metal mines with no culpable owners ("Animas spill," *HCN*, 8/31/15).

One minor comment is that aluminum is not considered a heavy metal. Although it can be toxic to fish in acidic water, this typically occurs in poorly buffered, acidic waters impacted by acid deposition, such as in the Adirondack region of New York. In the Animas River milieu, any effects related to aluminum would likely be overwhelmed by the impacts of toxic heavy metals, such as cadmium and lead.

I do have some concern regarding possible toxic levels of cadmium that might have occurred during the downstream pulse from the Gold King mine. Cadmium is often found in Colorado metal-mine drainage, and it is toxic to rainbow trout at concentrations less than 1 microgram/liter. Although cadmium is listed in the legend of the graph shown in the article, it does not appear in the graph itself. I assume that is because the levels are so low they are hidden by the lead line, but that doesn't mean that they are unimportant. It would have been informative to put cadmium and lead on a separate graph with a different scale so that the actual concentrations could be appraised.

Colorado has an extensive area of abandoned metal mines in the Colorado Mineral Belt, which extends from the San Juan Mountains in south-central Colorado to the Front Range in Boulder County. A colleague and I published the first statewide studies of metal mine drainage in this area in 1974 when we worked for the U.S. Geological Survey. Many studies have been done by government and academic researchers since that time to update our preliminary studies, and I am sure that similar water-quality issues related to the legacy of abandoned metal mines exist in all states of the Rocky Mountain West.

Dennis Wentz
Portland, Oregon

High Country News

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The death of the Land and Water Conservation Fund?

Congress derails the nation's most successful public access and recreation program

BY JODI PETERSON

More than 40 percent of our national parks, from Arizona's Saguaro to Wyoming's Grand Teton, contain inholdings. Those privately owned chunks of land complicate management, block public access and present a risk of development, as when a luxury home was built in the middle of Black Canyon of the Gunnison National Park, Colorado, five years ago. Now, the main source of funding for buying such inholdings, the Land and Water Conservation Fund, is in serious jeopardy. At the end of September, Congress let it expire, failing to reauthorize it despite widespread bipartisan support.

The LWCF does a lot more than buy inholdings. Roughly half of it goes to providing conservation easements on private land, conserving privately owned timberlands, developing urban parks and ball fields, and funding endangered species projects on non-federal lands.

Since its inception in 1964, the LWCF has protected more than 7 million acres. The fund draws no taxpayer dollars; most of it comes from royalties from offshore oil and gas drilling. "There's poetry in the idea that we can use revenue generated from the depletion of one resource to enhance another," says John Gale, conservation director of Backcountry Hunters and Anglers. Since 1978, the fund has been authorized to receive up to $900 million annually, though in recent years Congress has appropriated less than a third of that.

But even as Congress cut LWCF's funding, members on both sides of the aisle were trying to use it for projects in their own districts. According to a 2014 investigation by Greenwire, 16 Republicans, 48 Democrats and three independents had pushed for land acquisition, conservation easements, and grants for local parks and trails over the previous five years.

LWCF's primary foe is Utah Rep. Rob Bishop, R, chair of the House Natural Resources Committee, who has refused to even allow hearings on the bipartisan reauthorization bill that's been sitting in his committee since April. He's vowed to continue blocking LWCF until it's been reformed, citing his opposition to an increase in federal lands for any reason. (Just over two years ago, though, Bishop had proposed that Utah counties negotiate to get more congressionally designated wilderness, as a bargaining chip for increased energy development.) "We are not going to blindly reauthorize a fund with inherent flaws," says Bishop spokeswoman Julia Slingsby. "This law needs to be updated to reflect the 21st century."

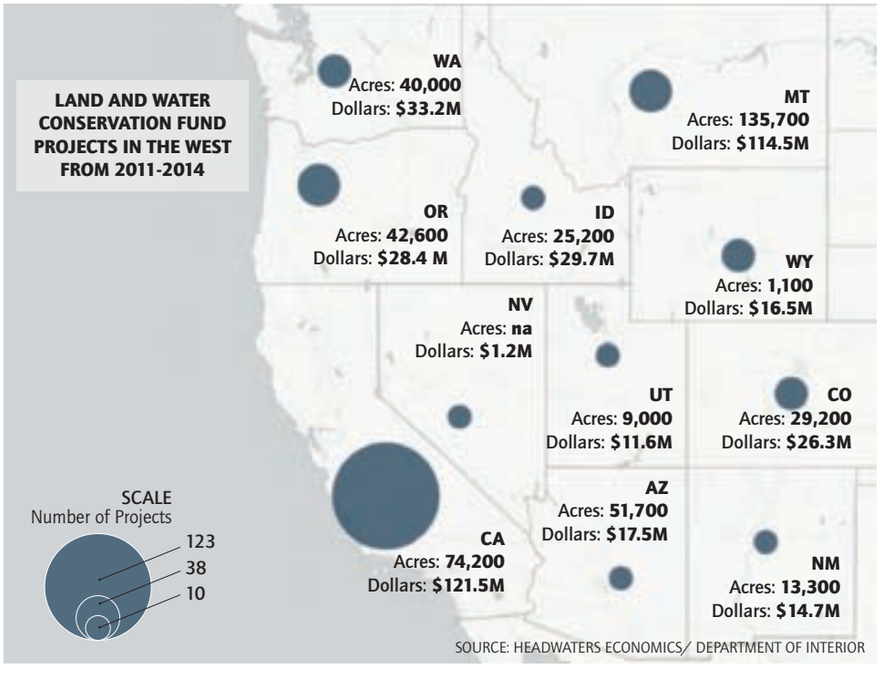
The fund that Bishop wants to update has provided $48 million to his state for local projects like soccer parks and swimming pools. It's also paid for acquiring more than 7,000 acres of private inholdings within Zion National Park, plus nearly 5,500 acres in Dinosaur National Monument. Bishop's reforms would put an end to such purchases. He has yet to offer a specific plan, but has suggested that the program's money could instead cover shortfalls in PILT, "payments in lieu of taxes" to counties with large amounts of federal land, or pay for the education of future energy-industry workers. He and other critics also say the fund should be used to cover the $12 billion maintenance backlog at national parks.

The LWCF has accumulated a $20 billion IOU thanks to the gap in appropriations, giving Bishop another excuse to stop funding it. But it's disingenuous to claim that this money is available to be spent, says Lynn Scarlett, managing director of public policy for The Nature Conservancy and deputy Interior secretary under George W. Bush. "There is no magic $20 billion waiting around, or even one dollar," she says. "It's a paperwork credit for funds long ago used for other purposes."

Now that the program has been allowed to sunset, the royalty money meant for it is going to the general treasury. Under the continuing budget resolution that expires Dec. 11, the House and Senate could pass an extension of the LWCF and maintain that funding link. If they don't, though, re-establishing it will take an act of Congress.

Fund supporters are now scrambling to find a must-pass piece of legislation they can attach reauthorization to. The most promising is a compromise by Sen. Lisa Murkowski, R-Alaska, and Sen. Maria Cantwell, D-Wash., that would make the program permanent and balance state and federal spending, giving each 40 percent of the annual appropriation, and allowing the remaining 20 percent to be spent flexibly. It would also create a separate fund to address the national park maintenance backlog. Other Western representatives have sponsored similar legislation, including Montana Sens. Steve Daines, R., and Jon Tester, D, as well as Sen. Michael Bennet, D-Colo., and Rep. Raúl Grijalva, D-Ariz.

Meanwhile, environmental and sportsmen's groups are lobbying mightily for the fund's resurrection. "It's hard for us to see something like LWCF that has broad support become a political chip," Gale says. "Congress should be able to function and move things that are good for the American people and absolutely a clear winner." □



HCN senior editor Jodi Peterson writes from Paonia, Colorado. @Peterson_Jodi

THE LATEST

Backstory

The proposed Trans-Pacific Partnership, a free-trade agreement between the U.S. and 12 countries that include many of the nation's largest export markets, has provoked stiff opposition from labor unions, environmental groups and small farmers. It would likely increase exports of liquefied natural gas – LNG – encouraging more gas drilling, fracking and pipeline construction. The West's first LNG terminal in Astoria, Oregon, was greenlighted in 2014, leaving critics focused on blocking another proposed project in Coos Bay ("How an international trade deal will impact Western states," *HCN*, 04/24/15).

Followup

In early October, the Federal Energy Regulatory Commission gave the Coos Bay LNG terminal the go-ahead despite the Environmental Protection Agency's conclusion that the gas terminal and pipeline would "cause some environmental damage." The $7.5 billion project would be linked to existing pipelines across southwestern Oregon. **Now, opponents want Gov. Kate Brown and state agencies to block the project before FERC submits final approval, expected at the end of this year.**

PAIGE BLANKENBUEHLER

Where Jesus is a cowboy

Colorado's Abbey of St. Walburga is a spiritual refuge and a working ranch

BY ELIZABETH ZACH

Sister Maria-Walburga Schortemeyer gives treats to the cows on the Abbey of St. Walburga ranch.
JIM WEST

Sister Magdalena Berndlmaier's veil wafts in the morning wind, as she swerves and jostles in the Kubota tractor and then pulls to a stop at a shed. She listens intently while Sister Gertrude Read suits up, puts on her bee bonnet and advises caution: Today, the old queen bee will be dethroned to make way for a younger, more vital monarch. This momentous reshuffling of the Apis Empire will require Read's deft maneuvers within the busy hive.

"I've been looking forward to this all morning," says Berndlmaier, whose admiration for Read's bravery is palpable.

The shed is packed to the rafters with paint cans, pesticides, rakes, brooms and plastic storage tubs, with a silver crucifix hanging on one wall. Read stands beneath it as she carefully pulls on her gloves and advises Berndlmaier to do the same before leading her to the nearby beehives.

Across the dirt road, Sister Ann Lee sits on a hay bale, feeding snacks to Clarabelle, one of several cows milling about. Later in the day, Read will instruct a few novitiates in the venerable art of making ricotta cheese, leaning over a steaming cauldron of milk.

Here at the Abbey of St. Walburga, cradled in the craggy hills that straddle the Wyoming-Colorado border, life reflects the medieval Benedictine motto of *ora et labora* — pray and work. The 24 nuns who live here rise before dawn, gather in the chapel to sing at 4:50 a.m., celebrate Mass, and then breakfast in silence — a daily calendar of contemplative ritual that the monastic order has honored for more than 10 centuries.

Much of the rest of their day, however, defies popular notions of monastic life: Off come the black flowing gowns, and on come the sturdy boots and gloves, as the sisters go out to work on the surrounding ranch and farmland. Their faces remain enveloped in coifs, held in place by sun visors, but the fashion is otherwise jeans, bandannas and long-sleeved denim shirts.

"We sometimes say that Jesus is a cowboy," says Sister Maria-Walburga Schortemeyer, as she moves lightly toward Yoda, one of the Abbey's three resident water buffaloes. She recalls how once, while transporting cattle from the abbey to Cheyenne, she had a flat tire. Some friendly cattlemen stopped to help her — saviors, as it were, although she says, "Darn it, I would have liked to prove to them I could take care of it myself."

The Abbey at St. Walburga was designed to be a contemplative sanctuary from the secular world. Indeed, the Colorado monastery is the offshoot of a 900-year-old motherhouse in Bavaria, which established a community in Boulder in 1935, partly as a refuge for sisters threatened by persecution in Nazi Germany. The monastery relocated to Virginia Dale in 1997 after it outgrew its Boulder house. Today, the women, who live lives of poverty and obedience, also make a vow of stability — agreeing to spend their lives in one place — in essence, choosing a course that runs counter to nearly everything modern America encourages.

Yet the abbey is every bit a working farm and ranch. Two dairy cows, some 50 hens, the bees, cattle — which are all named, Schortemeyer says, to respect their "bovinity" — and water buffaloes, all contribute to financially support the sisters' monastic lives. Catholic monasteries do not receive financial support from their archdiocese. A guesthouse provides most of the sisters' income, but they also accept donations, host retreats, and sell meat, eggs, cheese and honey in a shop on the Abbey grounds. As Schortemeyer says: "Selling 15,000 pounds of beef does provide decent funds to help pay those biggest of bills: health care, building and lands maintenance, food."

To some extent, the abbey mirrors the past three decades, during which, the U.S. Department of Agriculture says, the number of farms operated by women increased substantially in the West and across the nation. According to the agency, between 1978 and 2007, when the last agriculture census was conducted, the number of such farms grew from 306,200 to nearly a million. Today, women account for 30 percent of all farmers in the U.S. Researchers cite the appeal of the farm-to-fork movement, as well as women inheriting farms and ranches. Downsizing to smaller parcels and increasing mechanization have also helped make the work more affordable and less physically demanding.

Twenty-five years ago, Abbess Maria-Michael Newe steered the abbey toward a greater focus on sustainable agriculture, although working the land has been a tenet of the order's tradition since its founding. A Los Angeles native, Newe had no experience in rural labor when she arrived at the Boulder monastery. The nuns established the abbey on land, she says, that monks had originally owned and considered "unfarmable."

"These nuns were German immigrants — peasantry, basically," she says. "They watered with buckets, not hoses. Brooms were made out of willow branches. We shoveled a lot of ditches back then. You think, 'I didn't enter a monastery to farm,' but then again, the smell of the dirt, the contours of the land. … You find that you're in fact working in the Garden of Paradise." □

Elizabeth Zach, the staff writer at the nonprofit Rural Community Assistance Corporation, is also a fellow at Stanford University's Bill Lane Center for the American West.

Washington's wolf experiment

The state's emphasis on non-lethal control is saving livestock — and wolves — though ranchers are still leery

BY ERIC WAGNER

In July 2015, some U.S. Air Force personnel were hiking about eight miles up North Fork Chewelah Creek, in northeastern Washington, when they found the chewed-up remains of a cow. They notified the Washington Department of Fish and Wildlife, which sent out investigators the next day. The investigators found a second carcass nearby and three days later, discovered two more — a cow and a calf. Wolves, they determined, had killed all four animals.

The dead cattle were squarely in the territory of a wolf pack called Dirty Shirt, and local ranchers' reactions were predictably fierce. "The time for the removal of the Dirty Shirt pack is now," Justin Hedrick, the president of the Stevens County Cattlemen's Association, said in a statement. But instead of mustering sharpshooters, wildlife officials sent riders on horseback to keep the wolves away. They used generators to shine bright lights around the rest of the herd, while other employees patrolled the area. They shared data on the pack's location — three wolves are radio-collared — with area livestock producers, so other cattle could be shifted out of harm's way. But they also said that if the wolves killed more cows, they would consider shooting them.

Within a few days, the pack moved to a different part of its territory, and fears died down. Three months later, its wolves remain on probation of a sort, but the state hasn't taken further action. And even though tempers still simmer, the incident shows the difference between wolf recovery in the Northwest compared to the Rocky Mountains or the Southwest. Washington, with its generally more progressive politics, was able to adopt policies that would have had little traction in the Interior West. But even here, thanks to stark urban-rural political divides, the effort's successes come by way of a very delicate and ongoing balancing act.

Wolves re-introduced themselves to Washington, wandering in from Idaho and Canada, and successfully breeding in the state in 2008, the first time they had done so in 70 years. Today, Washington is home to at least 68 wolves and 16 known packs. That's due in part to the state's management plan, adopted in 2011, which explicitly aims to expand the wolf population rather than limit or destroy it, and adopts the region's most ambitious recovery goals. There must be 15 breeding pairs in total before wolves can be removed from the state's endangered species list, as compared to Oregon's four or the 10-each targets that the initial federal Northern Rockies recovery plan had for Montana, Idaho and Wyoming. Washington residents, too, are supportive: A survey commissioned in 2014 by the Washington wildlife department found that almost two-thirds of respondents favored wolf recovery.

But that same survey also showed that most of those supporters live along or to the west of Interstate 5, which passes through Bellingham, Seattle, Tacoma and Olympia — Washington's more liberal left side. In rural, conservative eastern Washington, where 12 of the state's 16 wolf packs actually live, people are far more ambivalent. It hasn't helped that wolves mostly entered the state through prime rangeland — where they were likely to face stiff human resistance — instead of national parks or areas with fewer cattle, as they did in Wyoming, Idaho and Montana. And they still have to cross hundreds more miles of agricultural land to reach what biologists consider the best habitat: the south-central Cascade Mountains, where healthy elk herds wander large forests.

This was the main challenge managers and stakeholders faced: keeping wolves alive long enough to move from the areas where they're not wanted to the areas where, for now at least, they're tolerated, if not desired. "It was a unique situation," says Dave Ware, the recently retired wolf policy lead for the Washington wildlife agency. "We set out with the idea that we could find a balance."

That's why the state management plan places such a heavy emphasis on non-lethal methods to prevent wolves from eating livestock, providing $370,000 in subsidies for range riders and other measures, such as automated lights and sirens, guard dogs and a special type of anti-predator flagging called fladry. About 40 ranchers took advantage of the program in 2015. "We are one of the only states that has put so much effort into preventative measures to keep wolves and livestock from getting too conflicted," Ware says.

Conservation organizations also partnered with the state to help livestock producers adjust. Jay Kehne, the Okanogan County organizer for Conservation Northwest, a group based in Bellingham, enlists ranchers to participate in pilot studies to test non-lethal practices, primarily range-riding, which involves a cowhand on horseback staying with livestock, keeping an eye out for wolves and acting as a sort of human deterrent.

It's a gradual effort, but the approach Conservation Northwest pushes has worked in other places, notably Montana and Alberta, Canada. The first year of the program, Kehne had one participant; the next year, three; the year after, six; and this year, seven ranchers signed up to receive a few thousand dollars a month to help cover a range rider's wages. (They can also receive matching funds from

Please see **Wolves**, *page 24*

Eric Wagner writes from Seattle, Washington.

*Polygons show estimated pack range. Packs represented by circles had only one wolf location; the circles are a general representation of their location.

SOURCE: WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, MARCH 2015

Valles Caldera, known for its large elk herds, is now a national park.
LARRY LAMSA/CC FLICKR

THE LATEST

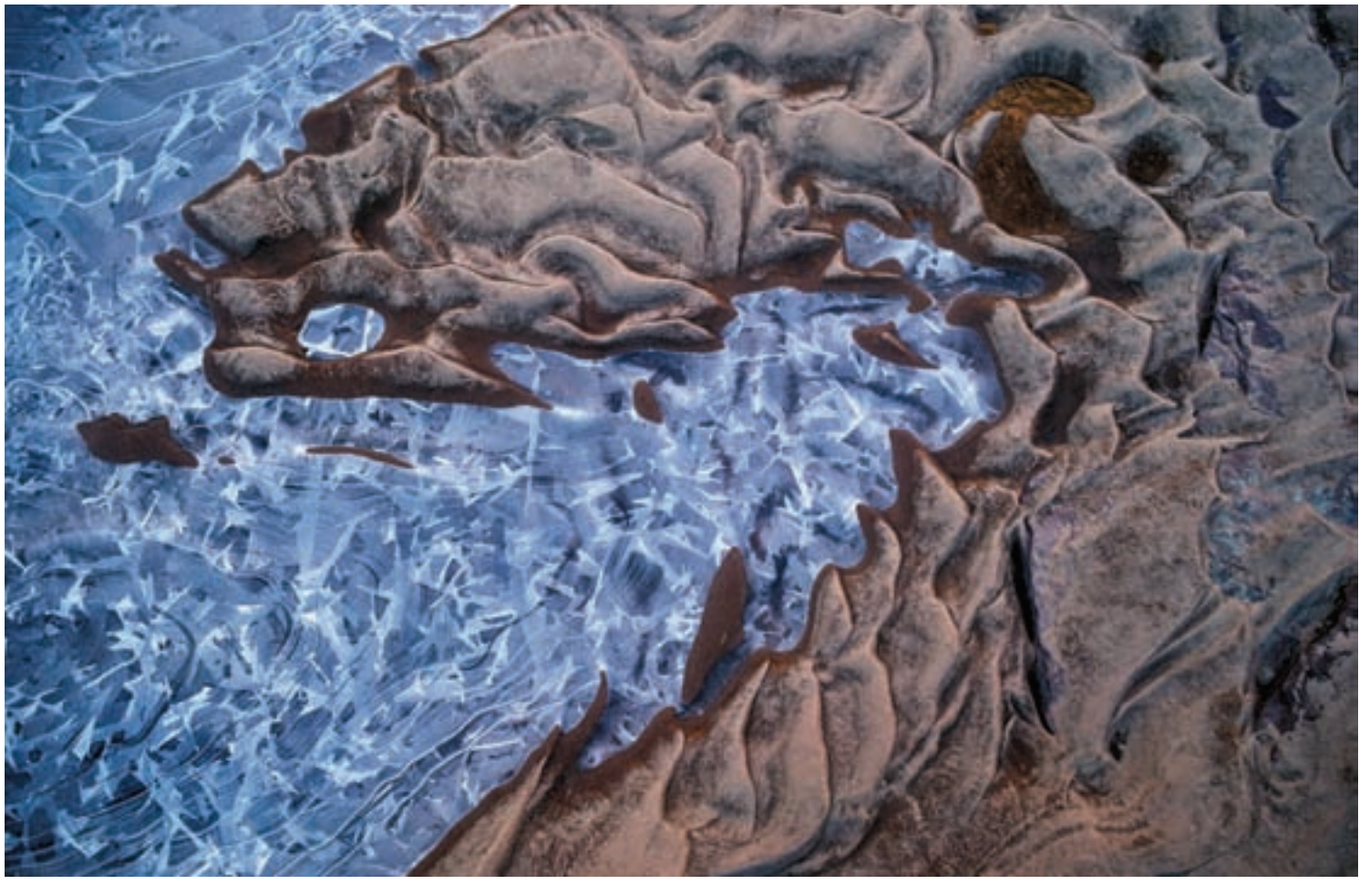
Backstory

Fifteen years ago, **the federal government undertook a major experiment in public-lands management, paying $101 million for the privately owned Baca Ranch in New Mexico's Jemez Mountains and creating the 89,000-acre Valles Caldera National Preserve.** The property would be run as a working ranch by a board of trustees, with a goal of financial self-sufficiency by 2020. Conflict later arose over whether it should be managed primarily for livestock production or for wildlife and recreation ("Trouble on the Valles Caldera," *HCN*, 11/28/05). But the preserve never came close to breaking even, and supporters thought the National Park Service, which has more resources, should take over management.

Followup

On Oct. 1, the Park Service announced it would assume management of Valles Caldera, thereby ending a failed experiment in privatizing land management. New Superintendent Jorge Silva-Banuelos, the trust's former executive director, promises increased access to tourists, hunters and fishermen. On Oct. 10, Interior Secretary Sally Jewell dedicated Valles Caldera – one of the country's newest national parks.

GLORIA DICKIE



READER'S CHOICE
Ice in the bottom of Elephant Canyon, with sand ripples from a recent small flood. Canyonlands National Park, Utah.
CHRISTOPHER BROWN

Agua Pura

Your approach to water

As drought continues across the West, we find ourselves newly aware of the wonder of water — the subject of this year's **photo contest**. Readers submitted 100 images, seeking to capture what makes water so precious. Here, you can see our readers' choice, above, the editors' choice, below, and an honorable mention. To see the rest of the photo submissions, visit **hcn.org/photos15**.

EDITOR'S CHOICE
A water tank in Arizona's Ironwood Forest National Monument proclaims a promise of salvation in two languages. Closer inspection reveals a bone-dry vessel, cruelly adding to the thirsty traveler's despair. JERRY CAGLE

HONORABLE MENTION
Lauren Harrod, 20, jumps over a puddle in Lincoln, Nebraska. You don't have to travel far to appreciate the significance of water.
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Continued on next page

***HCN*'s predecessor, *Camping News Weekly*, and the 1973 issue introducing new staff after readers saved the paper.** HCN ARCHIVES

45 years

High Country News

High Country News: Origins

The first in a series celebrating our 45th anniversary

"The days shorten. Hills turn sere and brown. Dried cases of the stonefly stick lifelessly to the exposed boulders; streams once brimming flow low and clear. ... As seasons swing, I suppose it is only natural that our thoughts turn inward and back."

Tom Bell — a Lander, Wyoming, rancher, wildlife biologist and World War II combat veteran — wrote this for the "Fall Fishing Issue" of *High Country News* in 1970. A year earlier, he'd purchased *Camping News Weekly*, a small newspaper geared toward hunters and anglers. Soon afterward, he renamed it, creating a new kind of publication that has endured for 45 years.

***High Country News* founder Tom Bell in 1984.** MIKE MCCLURE

Bell loved the natural world and initially preserved much of *Camping News*' outdoor flavor. But his vision for the paper — as a voice for the nascent environmental movement — was already clear: A recipe for leftover roast elk sandwiches would appear next to a strongly worded column about timber legislation.

For the next few years, Bell and a shoestring staff did what other newspapers refused to do — announced important wilderness hearings and mining proposals, scolded the governor for cozying up to industry, shamed local ranchers for killing eagles and fencing in pronghorn.

His views weren't terribly popular in Wyoming, and the paper — with only a few thousand subscribers — struggled. Bell, who earned almost nothing, eventually sold his ranch and moved his family into a small house in town. He made *High Country News* a nonprofit in 1971, and asked readers for extra support. But it wasn't enough; in 1973, he announced that *HCN* was closing shop.

In one of the highlights of *HCN* history, money poured in from readers, and the paper survived. Bell called it a miracle, and printed the donors' names in a centerspread — a tradition that lives on today as the Research Fund.

Shortly before Bell left *HCN* in 1974 — exhausted by the constant deadline grind — he hired two young editors, Joan Nice and Bruce Hamilton. When a wave of energy development hit Wyoming, the duo wrote sharp-eyed stories about strip mining, oil shale and their effects on small-town communities. Marjane Ambler, another young editor, joined that same year, bringing an interest in Native American issues. Together, through the mid-'70s, they secured *HCN* as a solid environmental news source and expanded its reach across the Rocky Mountains.

As the days again shorten and the seasons swing, we're reflecting on *HCN*'s 45 years. Stay tuned for more chapters. And visit our website to read articles chosen by former *HCN* editors. (Look for the 45th anniversary logo.) **hcn.org/45**

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WYOMING GRASSLANDS
Michael P. Berman, William S. Sutton, Frank H. Goodyear Jr., and Charles R. Preston
232 pages, hardcover:
$39.95.
University of Oklahoma Press, 2015.

In 2012, Michael Berman and William Sutton set out to photograph the prairies of Wyoming as part of a collaborative project between The Nature Conservancy and the Buffalo Bill Center of the West. *Wyoming Grasslands*, the culmination of the project, echoes the tradition and style of late-19th century photographers in revealing the grandeur of the barren and yet surprisingly productive landscapes of the state. Black-and-white and color photographs offer close-up views of delicately textured grasses as well as sweeping panoramas of prairie speckled only by hay bales and a few cattle. Accompanying essays by Frank Goodyear and Charles Preston give context to the artistic and natural history of the American West, illuminating the area's ecological diversity and the influence it once had – and still does – on photographers with a sensitive eye for this region's unique wild beauty. GLORIA DICKIE

O'Toole Ranch, Carbon County, June 25, 2012.
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Celebrating the harvest

It's fall in Colorado's North Fork Valley, and so far a mixed bag: Early-season elk hunters are bringing their kills to the meat processor next door, and those of us with late-season tags are eyeing the shorter days and falling temperatures. But an early bloom and late frost this spring hit our orchards hard, so we're short on peaches and apples, and, up the valley, another local coal mine just announced a round of layoffs. Still, we're having a fine-enough autumn, with dry trails for the mountain bikers in the piñon and juniper, and fiery orange leaves in the Gambel oak, where the black bears hide.

Every fall, Paonia, where *High Country News* is headquartered, celebrates its farmers, gardeners and vintners with a Mountain Harvest Festival, which includes a charity grape stomp. This year's *HCN* team exploited managing editor **Brian Calvert** and editorial interns **Paige Blankenbuehler** and **Gloria Dickie**, who competed as "The Grapeful Dead," deadpanning lyrics by Jerry Garcia, et al. We received second place for audience donations but brought in less than five pounds of juice despite three minutes of valiant stomping. The winning team, from the Paonia Library — four women dressed as Lucy Ricardo in neon '80s workout gear, leg warmers included — mashed out well over seven pounds of juice.

The harvest festival brings a lot of folks to town, and our office saw a lot of visitors.

Trish Miller and **Tim Maher** stopped by from Milwaukee, Wisconsin, having just visited the Black Canyon of the Gunnison, south of town. Neither of them were readers (hadn't heard of us), but a tour of headquarters inspired them to subscribe. Their wedding theme was "Tree of Life," so they were excited by the June 8, 2015, issue of the same name, and even purchased our "Tree of Life" poster, based on that issue's cover art by **Bryce Gladfelter**.

Michael Verdone came by the office for a quick tour following a friend's wedding in nearby Redstone. The Boulderite was introduced to the magazine on climbing trips with friends nearly a decade ago, as they discussed urbanization and public lands. Now, Michael says, his brother is an avid reader, too, and often swipes his issues before he gets a chance to read them. Two words, Michael: gift subscription.

Paula Rinaldi and **Steve Howe** couldn't pass up the chance to visit our office in early October. The Boulder couple was getting a head start on a weekend of camping up on Grand Mesa, north of town. Steve, a retired graphic designer, was eager to see the production process. Unfortunately, the magazine isn't printed in-house, so he'll have to head to Denver to see our presses.

CORRECTION
In our Oct. 12 issue, we messed up the name of the Natural Resources Defense Council. We do value all our "national resources," but we also regret the error.

—Brian Calvert for the staff

***HCN*'s grape stomping team, right, "The Grapeful Dead," competing at Paonia's Mountain Harvest Festival.** R. BENJAMIN LEHMAN

Green Energy's Dirty

Birds are collateral damage in the push for industrial-scale solar and wind

FEATURE BY
JUDITH LEWIS
MERNIT

Even on paper, it was a wonder: Three expansive circles of shining mirrors supplicating three glowing 500-foot-tall towers, each engineered to turn the sun's heat into electricity in the otherwise godforsaken Mojave Desert. The Ivanpah Solar Electric Generating System offered a sparkling vision of our nature-powered future, whose every gigawatt would keep tons of coal's heat-trapping pollutants out of the atmosphere. BrightSource Inc., a company based in Oakland, California, would design it; construction giant Bechtel would build it on 4,000 acres near the California-Nevada border. It would supply clean electricity to 140,000 homes.

In 2010, when Bechtel broke ground on Ivanpah, it held such promise that President Barack Obama worked it into a speech on the nation's energy. "With projects like this one," he declared, "we are staking our claim to continued leadership in the new global economy."

As its miles of glinting glass and radiant columns rose on the landscape, tourists from China and India came on buses to marvel. It attracted a $168 million investment from high-tech giant Google; the U.S. Energy Department backed its $1.6 billion in construction loans. For many energy speculators, environmentalists and green-energy proponents, a long-held dream was finally coming true. "The wasteland of the Mojave Desert," as one Los Angeles-based energy guru put it, was on its way to becoming the "goldmine of our future energy needs."

BrightSource and its partners managed to weather a fracas or two over the destruction of rare plant colonies and threatened desert tortoise dens. But then, in September 2013, as engineers readied the plant to send its first sparks to the grid, burned birds started turning up on the ground within Ivanpah's luminous expanse. Some of them — a small yellow ball of a songbird called a Wilson's warbler, a delicate Cassin's vireo, a peregrine falcon — looked as though they'd been struck by a death ray: Their feathers had been melted, their bodies singed.

The Ivanpah facility is a "power-tower" type of solar thermal collector; its mirrors radiate intense beams of heat known as "solar flux." The phenomenon had killed birds before, at a small power-tower experiment that operated briefly in the 1980s near Daggett, California. Ivanpah is 40 times as big, though its dead birds came as a surprise. "You might say we didn't look hard enough," says Craig Turchi, an engineer with the National Renewable Energy Laboratory, who recently contributed to an analysis of Big Solar's bird problem. "But there wasn't any red flag."

Before Ivanpah's construction began, however, an ecologist named Shawn Smallwood suspected that the plant might prove even more deadly to birds than some of California's wind farms. Smallwood had spent close to two decades trying to resolve the conflict between turbines and birds in Central California's Altamont Pass, a particularly dangerous corridor for golden eagles drawn to the area's grassy hills. Ornithologists since the 1970s had documented hundreds of different birds in the California desert — hawks, doves, owls and passerines — lingering around desert springs, migrating through mountain passes, or nesting in the dry lowland scrub. He worried early on that the Mojave Desert might be Big Solar's Altamont.

He worries still. California lawmakers recently raised the renewable energy goal for the state's utilities to 50 percent by 2030, a potential resuscitating jolt to the market for large renewable energy projects, especially since, in California, rooftop solar doesn't count toward that quota. A new state and federal collaborative effort to locate large energy plants where they'll do the least damage, the Desert Renewable Energy Conservation Plan, would in some cases rubber-stamp developments on crucial habitat for certain birds, like the burrowing owl. But the energy companies involved insist that their projects matter too much to the climate to be derailed by a few dead birds — when, that is, they admit that their plants kill birds at all.

To Smallwood, it's a familiar story. Ten years ago, his efforts to count the bird kills in the Altamont Pass, and propose solutions to reduce them, nearly ended his career. The solar industry "is now doing the same thing the wind industry did," Smallwood says. "They've reacted the same way."

Secret

IN AUGUST OF 2004, the California Energy Commission published a study, *Developing Methods for Reducing Bird Mortality in the Altamont Pass*, the culmination of four years of research by Smallwood and biologist Carl Thelander. Smallwood and Thelander built on earlier investigations by Sue Orloff, the first biologist to notice raptor carcasses around the Altamont's turbines. But while Orloff had searched for just six seasons, Smallwood scoured turbine strings for three and a half years. Orloff figured a few hundred birds were dying every year; Smallwood's estimate rose into the thousands.

"This was the first time people really understood the magnitude of the issue," Smallwood says.

Golden eagles are large, pale-brown birds with six-foot wingspans; they lock on to their prey from two miles off and dive in at racecar speeds. Like Orloff, Smallwood suspected that the birds were too focused and fast to catch the spinning blades in their fields of vision. He concluded that peregrine falcons, red-tailed hawks and American kestrels were getting whacked for similar reasons. But he didn't just analyze the problem; he offered solutions.

Smallwood discarded a popular theory about lattice turbines providing more perching opportunities than the tubular kind; he didn't see any evidence to support it. He also dismissed as ineffective the practice of setting out poison-laced rolled oats to control rodents. Instead, he settled on two major remedies: Move turbines out of canyons, where golden eagles do most of their foraging; and replace the many small turbines in the Altamont Pass with fewer, larger and more powerful ones, a process called "repowering." Both would take time and money, he realized. But both were necessary if wind companies wanted to avoid violating the Migratory Bird Treaty Act, an international convention protecting a long list of wild birds, and the even more stringent Bald and Golden Eagle Protection Act. "I was always looking for ways to solve problems," Smallwood says, "not to destroy the industry."

Industry executives, however, saw it differently. In 2004, nearly one-third of the nation's wind-energy capacity existed in

A golden eagle near wind farm turbines in the Great Basin.
DAVID LAMFROM

Ecologist Shawn Smallwood scans the ridge lines looking for birds of prey flying among the wind turbines at Altamont Pass, California.
ROBERT C. BAIN

California, where the first utility-scale wind farm went up in 1980. Most of the turbines were designed and built with subsidies that dated back to President Jimmy Carter. Companies like Florida Power and Light and Sea West had paid off their loans; they didn't want to buy anything new.

"The equipment was running, it was already paid for, and it was a cash cow," says Bob Thresher, a National Renewable Energy Lab research fellow who's spent two decades working with the wind industry. "Things were going gangbusters for them, and they just didn't want to repower."

Thresher says that the energy companies took the bird issue seriously and formed committees to address it. But other observers disagree. Doug Bell, the wildlife program manager for the East Bay Regional Parks District, which owns one-tenth of the land in the Altamont Pass Wind Resource Area, says that the industry banded together not to address avian fatalities, but to sow doubt about their existence. "It's like the tobacco industry forming an interest group to fund research," he says.

Smallwood didn't expect wind proponents to embrace his work with Thelander. Yet neither did he anticipate what was to come. A year after the study's publication, he launched a new project, researching how grazing influences bird activity in the Vasco Caves, a particularly troublesome area in the Altamont Pass. But when he went to conduct a search near a cluster of turbines owned by Wintec Energy, a team of security guards ushered him away.

"That," Smallwood says, "was a defining moment for me."

Over the next few years and into the next decade, industry groups and energy companies conducted a relentless campaign against Smallwood, accusing him of manufacturing data and falsifying results. "Much of the evidence of bird takes contained in the Smallwood study is altered and forged," Fred Noble, Wintec's CEO, wrote in a letter to the Energy Commission, adding that, "In the past 26 years I have seen only one bird killed by a windmill facility, and that was a crow killed by an open transformer." A PowerPoint slideshow circulated among media and legislators, implying that Smallwood and Thelander counted every stray bone and feather as a turbine-felled bird. Nancy Rader, the executive director of the California Wind Energy Association, demanded that the Energy Commission throw out two formal evaluations of the study — peer reviews done according to standard scientific practice — and have industry-selected biostatisticians tackle it anew. In an unprecedented move, the Energy Commission complied.

The California Wind Energy Association even hired a biologist, who argued that the turbine blades were too big to cut birds in half, as Smallwood claimed they did. "But we were still finding them all over the ground, cut in half," says Smallwood. "What, did God send them to earth cut in pieces?"

The attacks reached such a pitch that a supervising deputy in the California attorney general's office wrote an emphatic letter to two wind-company lawyers, pleading with them to stop the "sensationalized, non-scientific, personal and petty" campaign against Smallwood. "Dr. Smallwood has conducted more field research and authored and published more studies concerning the bird deaths at the Altamont Pass than any other scientist in his field," read the letter. "The inaccurate and personal attacks … threaten the potential for a progressive discussion among the interested parties."

Despite that defense, after 2005 the Energy Commission stopped awarding research grants to Smallwood. "I was asked to end my consultancy with the Energy Commission," Smallwood says. (Energy Commission spokesman Michael Ward neither confirms nor denies this. "Most, if not all, of the people involved in that project are no longer with the agency," he wrote in an email.)

Thelander, too, found himself shut out of the wind industry, for which he had conducted research since 1989. He declined to comment for this article, but in 2005, he wrote a 41-page letter to the Energy Commission, railing against the wind industry's evident exemption from state and federal environmental laws. "Political manipulation of the regulatory process seems extraordinary in this case," Thelander wrote, "but it appears it has in fact occurred."

Smallwood, then in his early 40s with two young children, found the attacks devastating. "I lost work," he says. "(The wind executives) put pressure on the commissioners, and I was blackballed by the Energy Commission for a couple of years." A steady source of income, as well as a chance to contribute important scientific research on a developing industry, was gone.

ALMOST A DECADE LATER, evidence began to emerge of industrial solar's threat to birds.

On May 8, 2013, a worker at the Desert Sunlight photovoltaic solar plant near Joshua Tree National Park stumbled across the carcass of a chicken-sized gray-brown bird with unusually long legs — a bird that belonged near water, not on the plains of the Colorado Desert. Biologists later identified the bird as a Yuma clapper

rail, one of fewer than 900 left in the wild. The bird's death, were it proved to be associated with the 4,400-acre solar farm, would potentially constitute a violation of the Endangered Species Act, for which the plant's primary owner and operator, Florida Power and Light under its new name, NextEra Energy Resources, could face prosecution. But the bird's body was too decomposed to determine the cause of its death. U.S. Fish and Wildlife biologists could only speculate: A field of solar arrays viewed from above, especially in the low light of morning or evening, looks like water. The bird may have flown down expecting refreshment, and died upon collision or of exhaustion.

That theory gained traction in July of that year, when journalist Chris Clarke reported on more solar-related water bird deaths for his blog at KCET, an independent Los Angeles television station. According to reports NextEra had filed with the Energy Commission, a common loon, three western grebes and five brown pelicans were found dead or injured at Desert Sunlight and NextEra's Genesis solar facility, 40 miles east. Genesis uses long troughs of curved mirrors to concentrate sunlight; Amedee Brickey, deputy chief of migratory birds for Fish and Wildlife's Pacific Southwest Region, says birds might judge them as airspace, colliding headlong into glass where they expected sky.

Then, in September, workers found dead birds around Ivanpah.

Before a single mirror went up on the site, in 2010, Smallwood had been retained by a law firm to assess the plant's threat to birds. He used data from biologist Michael McCrary's 1986 study of birds around the Daggett plant — to this day, the only peer-reviewed research on birds and industrial solar plants. Smallwood applied updated methods of adjusting for birds that searchers might have missed and came up with an estimate of 8,000 birds killed per year.

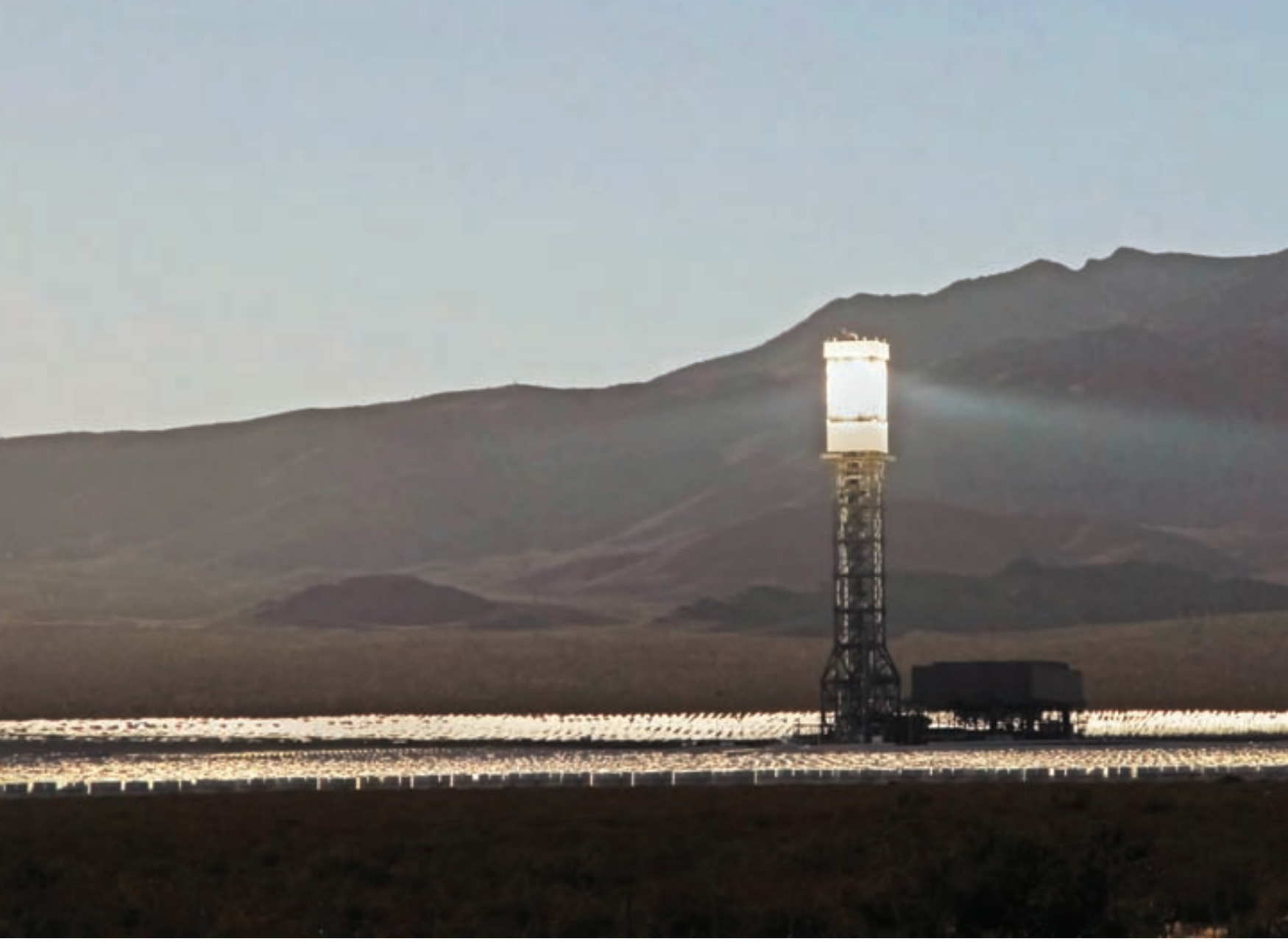
His client, whose name is protected by a non-disclosure agreement, settled the case secretly with the developer, and the data never got out. It was just as well, Smallwood said later: "I had the rates too low."

In spring 2014, the Center for Biological Diversity hired Smallwood to weigh in publicly on another power-tower plant that BrightSource wanted to build — and most environmentalists wanted to stop — near the Colorado River in California, the Palen Solar Energy Generating System. By that time, Ivanpah was nearing completion, and its owners were filing monthly reports with the Energy Commission that included wildlife casualties. Smallwood dug up his old estimates and compared them to the actual counts of dead birds in the reports. That June, he revealed his revised estimate at an Energy Commission hearing on the Palen proposal.

Smallwood walked the commissioners through his math: Search teams at Ivanpah had reported finding anywhere from 82 to 101 birds each month. If they followed the protocol laid out in Ivanpah's monitoring plan, they checked only about a fifth of the site, so Smallwood estimated that perhaps five times as many birds might be dying around the plant. And because many of the birds found were tiny, vultures, foxes and other scavengers likely consumed up to three-quarters of them — another standard calculation, called "scavenger bias" in Smallwood's field. All told, Smallwood concluded, a realistic monthly count of dead birds might surpass 2,000. "If this rate persisted year long," Smallwood said, "then Ivanpah might be killing 28,380 birds (per year)."

The energy companies had several people ready to debate Smallwood at the hearing. One was Wally Erickson, a biologist with Western EcoSystems Technology

Older, smaller turbines, left, and a new, large turbine sit side-by-side at Altamont Pass California. Each large 2.3 MW turbine generates as much electricity as 23 small ones, can operate at a wider range of wind speeds, and creates fewer obstacles for birds. ROBERT BAIN



The solar tower and shimmering panels at the Ivanpah Solar Electric Generating System in the Mojave Desert. RON WOLF

Inc., whom BrightSource and its partner in the Palen project, Spanish developer Abengoa, hired to testify. Smallwood and Erickson were well acquainted: In 2004, Erickson submitted comments to the Energy Commission accusing Smallwood and Thelander of "data dredging"— teasing out statistical patterns that may not exist. Now, Erickson was arguing that Smallwood had overestimated scavenger bias, underestimated the search area and used only the two months of data the plant's operators had so far released. Erickson said he had seven months of data, and used them to come up with an estimate of 1,469 birds per year — a figure that accounts only minimally for dead birds searchers missed.

Smallwood acknowledged that his information was scant and his calculations rough. "Back-of-the-napkin-level," he called them, a phrase that would later be used against him. But if his estimate was anywhere close to correct, he said, "then solar thermal in California's deserts will cause far greater impacts to wildlife than did the notorious Altamont Pass Wind Resource Area."

Gordon Pratt, a scientist who, before he retired two years ago, worked as a field entomologist for the University of California Riverside, also spoke at the Palen meeting, about the potential for solar power towers to become "ecological mega-traps." Light from the towers, which is brighter than daylight, could attract insects, he thought, which would in turn draw in birds.

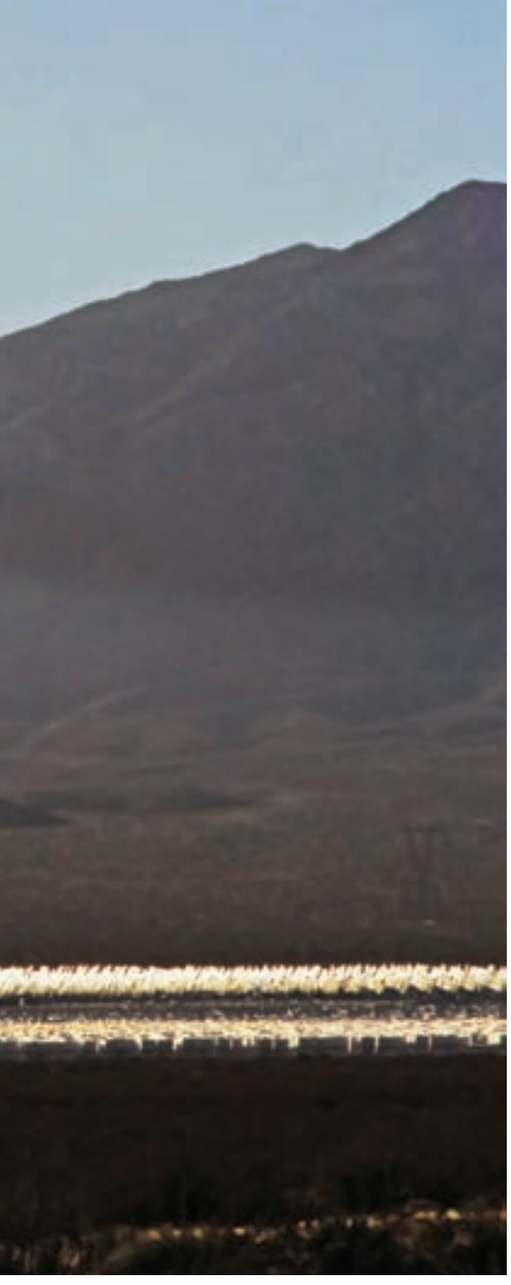
Fish and Wildlife's forensics lab biologists had observed this phenomenon. In a preliminary report published a few months earlier, they'd described seeing "hundreds upon hundreds" of insect carcasses, including dragonflies and monarchs, falling from the sky, many of them burned. Birds feeding on the insects sometimes "flew into the solar flux and ignited," they wrote. But when Pratt raised the issue, Richard Kaae, a professor of pest management at Cal Poly Pomona, who bills himself as an expert witness on insect behavior, spoke up to dismiss him. He insisted that diurnal insects aren't attracted to light, because if they were, they'd fly toward the sun.

Pratt, who had testified and written up his detailed analysis for free, was astonished. He asked, "Well, then why don't nocturnal insects fly into the moon?"

"They shouldn't," Kaae said, and the discussion moved on.

Two months after that hearing, the Associated Press picked up on Fish and Wildlife's forensics lab report for a national story, headlined "Emerging Solar Plants Scorch Birds in Mid-Air." It presented a range of estimates for birds killed at Ivanpah, not just by flux but by collisions and other hazards: a low of 1,000 per year according to the industry, and as many as 28,000 according to an "expert for the Center for Biological Diversity environmental group." That expert, of course, was Smallwood.

Representatives from the solar industry were quick to respond. Jeff Holland, the spokesman for NRG Inc., the company that operates the Ivanpah



facility, called Fish and Wildlife's analysis "premature." Holland's boss, NRG CEO David Crane, declared the bird deaths a "non-issue." BrightSource spokesman Joe Desmond, a former Energy Commission chairman, insisted in a Web post that "air in the solar field does not get hot from solar flux: it cannot absorb the flux and convert it to thermal energy." But no credible biologist or even advocate had ever claimed otherwise: Flux needs a target to absorb heat. As BrightSource's strategic planning director, Binyamin Koretz, explained during his own Palen testimony, "When light energy is absorbed by an object that it hits, it is converted to solar energy. Dark colors absorb more, light colors absorb less." A dark-feathered bird, then, is an excellent absorber of flux.

A week after the AP story ran, lobbyist Frank Maisano, known for defending nuclear power, coal, oil and gas against environmental and public health laws, came to BrightSource's defense. Quoting a 1988 hit by the hip-hop group Public Enemy, "Don't Believe the Hype," Maisano's email claimed that Ivanpah's flux had killed only 133 birds in six months. The 28,000 number was "suspect," he said, because the scientist who came up with it admitted his calculations were "back-of-the-napkin-level, and were based on assumptions I cannot at this time verify as correct." Maisano did not mention that Smallwood was mainly worried that his estimate was low.

Maisano was right about one thing, Smallwood admits: "There really was a napkin."

Maisano's pitch landed hard: Several media stories, from the *Las Vegas Review-Journal* to CleanTechnica.com, ran stories accusing Smallwood of "truthiness" and exaggeration. Like Maisano, they said nothing of Smallwood's plainly detailed calculations, but seized upon the scientific caution in his testimony, and used it to discredit everything he said.

ADVOCATES OF INDUSTRIAL RENEWABLE ENERGY, including many environmentalists and scientists, argue that some birds and animals will have to die to reverse climate change. Benjamin Sovacool of the Vermont Law School estimates that the combined impacts of fossil-fueled electricity kill as many as 14 million birds every year. Sovacool even argues that the Altamont Pass wind farms are of net benefit to avian species, because by producing clean energy, they spare 3,217 birds that would otherwise die every year from pollution and climate change. ("Though to be fair," he admits, "the species of birds saved would likely be different than the species killed.")

Birds face a lot of hazards in this world: Oklahoma State University biologist Scott Loss estimates that as many as 988 million every year collide with windows on buildings big and small. The Bureau of Land Management in 2012 noted as many as 1 million die each year in oil fields.

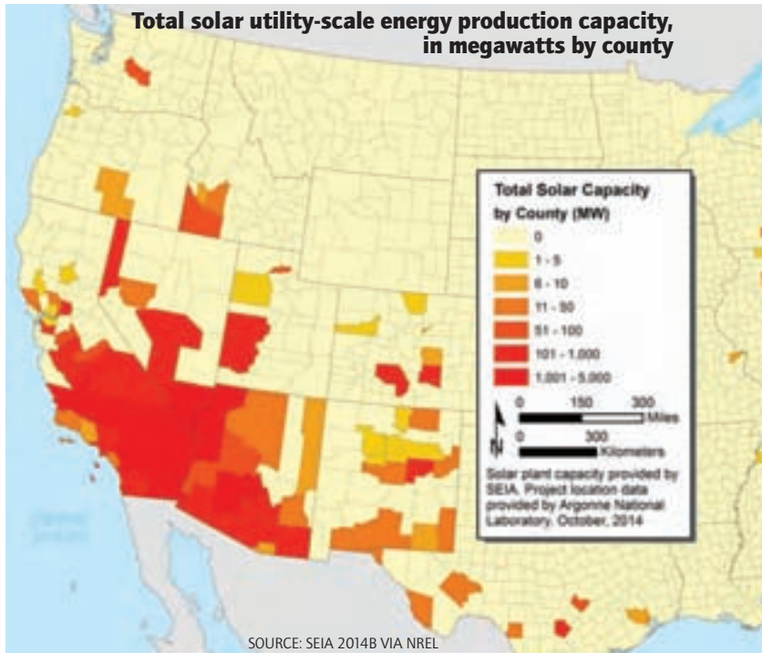
Then there's the domestic cat. Everyone who worries about birds dying at renewable energy facilities gets a lecture about cats; the very mention of the word gets a laugh out of Smallwood. "Right!" he says. "Cats!" Loss has estimated that felines could kill anywhere from 1.3 billion to 4 billion birds every year; Erickson has cited similar statistics, which Maisano and other energy advocates use in their arguments.

"Sure, cats kill a lot of birds," Smallwood laments. "So how does it help to add another mortality source?" Cats kill mice and squirrels, too, but the BLM still rejected a solar plant a few years ago for the sake of the state-threatened Mohave ground squirrel near Ridgecrest, California. Sage grouse, condors and whooping cranes have all been given special consideration in conservation matters, because they're specific populations of birds, with specific ranges and needs.

"If birds are dying of particulate matter," Bell says, "that's different than wiping out a local population. That's what we can wrap our minds around, and that's the way environmental regulations work. We're dealing with the infrastructure of the Migratory Bird Treaty Act, with the project-specific rules of the California Environmental Quality Act. What does it mean to kill 100 western meadowlarks in one place in a specific period of time? Do we know?" In the Altamont Pass, the golden eagle fatalities go far beyond "compensatory mortality": The birds can't produce enough young to replace the adults that are being killed.

The future survival of peregrine falcons and burrowing owls and golden eagles has nothing to do with cats, and everything to do with habitat. "No cat has ever killed a golden eagle," Smallwood points out. "If it comes to that, it goes the other way."

Neither Smallwood nor Pratt nor Bell deny the benefits of producing electricity without carbon emissions, nor do they dismiss the threat of a warming planet to birds and other animals. But they ask: If one of the reasons for reducing



SOURCE: SEIA 2014B VIA NREL

A MacGillivray's warbler, one of 233 birds collected during a U.S. Fish and Wildlife study on avian mortality at Southern California solar facilities, including Ivanpah, Genesis and Desert Sunlight. The study found solar flux and impact trauma were the main causes of death. USFWS

An oil-slicked pied-billed grebe paddles in an evaporation pond at an oilfield wastewater disposal facility in Johnson County, Wyoming. PEDRO RAMIREZ/USFWS

Tarred and feathered

Migratory Bird Treaty Act faces ongoing challenge in the courts

One of the oldest federal wildlife laws on the books, the act prohibits the "hunt, take, capture (or) kill" of migratory birds and protects their nests and eggs — even their feathers.

In 2002, Texas environmental inspectors found 35 migratory birds dead in two large uncovered oil-water separators at a refinery near Corpus Christi. The inspectors cited CITGO Petroleum Corporation for violating the Migratory Bird Treaty Act in its taking of the birds, which included five white pelicans, four double crested cormorants and several different species of duck.

The case went to the Texas District Court in 2007, where CITGO was convicted on three of the five misdemeanor charges. But in September, the 5th Circuit Court of Appeals reversed that decision, arguing that the act didn't apply to accidental kills without criminal intent.

The Migratory Bird Treaty Act is one of the oldest federal wildlife laws on the books. Passed in 1918, it prohibits the "hunt, take, capture (or) kill" of migratory birds and protects their nests and eggs — even their feathers. The law, which currently covers 1,027 species, has long been used to protect birds making seasonal pilgrimages between Mexico, Japan, Russia, Canada and the United States from the impacts of industry. But the 5th Circuit Court's decision could erode the act's ability to penalize incidental deaths. And without the threat of litigation, conservationists fear that oil and gas companies, wind farms and other industrial operations will be less concerned about preventing accidental bird deaths.

The case law isn't completely uniform when it comes to the act, and courts have disagreed over whether or not lethal actions need to be intentional in order to be prosecuted. Recent rulings in the 2nd and 10th circuit courts have taken the view that the law's prohibition on "take" applies to any activity that is likely to kill migratory birds, even if it's not deliberately designed to do so, says Eric Glitzenstein, an attorney for the American Bird Conservancy.

But the 8th Circuit Court, which is in the Midwest, and the 9th Circuit, which spans nine Western states and two Pacific Islands jurisdictions, disagree to an extent. In rulings on wind projects and federal timber harvesting, they have determined that habitat modifications that *indirectly* kill birds cannot be penalized under the act.

Svend Brandt-Erichsen, an attorney at Seattle-based Marten Law who represents energy companies, agrees with this narrower interpretation. "The MBTA is an older statute; it was adopted to address poaching and hunting practices affecting migratory birds, long before the concept of regulating the incidental impacts of lawful activity," he says.

In the Sept. 4 ruling, the court noted that a person whose car accidentally collides with a migratory bird, or owners of electrical lines that "take birds," can't be held strictly liable. "If it applies to human activity regardless of intent, then where do you draw the line?" asks Brandt-Erichsen.

For Glitzenstein, though, there's a clear split between day-to-day human activity and "inherently hazardous activities" that allow the government to pursue charges against industry.

Driving a car is unlikely to cause the death of a migratory bird, unlike some massive industrial activities, such as wind turbines set in migratory pathways. It's not that those activities shouldn't proceed, Glitzenstein says, but rather that they need to follow the rules set up to minimize and mitigate impacts on protected species.

One such measure would be an "incidental take" permit, which allows a company to perform actions that are otherwise legal but that might cause unavoidable bird deaths. As part of the permit, Fish and Wildlife could require measures to minimize the impact of drilling pits, gas flares, power lines and the like, by shifting them away from breeding sites or migratory pathways, changing their design, and restoring damaged habitat. The agency is currently evaluating a proposal for such permits.

Though the 5th Circuit Court's ruling sets a binding precedent only in its jurisdiction, which includes Texas and parts of Louisiana and Mississippi, and is notorious for ruling against environmental regulations, Glitzenstein fears that the decision could undermine the establishment of incidental take permits. If companies feel like they're already exempt from the law's rules, they have little incentive to apply for a permit and take serious measures to protect birds.

As potential litigation continues, agency officials say they will craft regulations and policy to support a more "modern interpretation" of the Migratory Bird Treaty Act. The incidental take permit, for example, is based on the assumption that companies are indeed liable for unintentionally killing migratory birds.

Glitzenstein notes that from a self-interest standpoint, industry should support laws like the Migratory Bird Treaty Act, which can prevent a species from winding up on the endangered species list.

"If you impose the ESA, then you're really talking about imposing extremely tight measures," he says. "Under the MBTA, industry can work with the government with reasonable measures."

GLORIA DICKIE

greenhouse gases is to protect the earth's species, what kind of sense does it make to destroy precious wildlife habitat in the meantime? Desert ecology is especially rare, sensitive and fragile, and desert plants and animals have adapted, narrowly and specifically, to its conditions; they can't simply move up the mountain.

The western burrowing owl, for example, a species of special concern in California, could disappear from southeastern California's Imperial Valley if solar development proceeds according to the terms of the Desert Renewable Energy Conservation Plan. Seventy-one percent of California's population of the compact, charismatic birds of prey reside in an area of the Imperial Valley slated for dozens of photovoltaic solar projects. The acreage set aside for solar in the plan will displace more than half of them.

"Where are they going to go?" Smallwood asks. "It's not like they can move over." The Yuma clapper rail has not been pushed to the brink by climate change, or soot and smog. The birds have been undone by the destruction of the freshwater marshes where they fish and nest. "That's a problem right in front of us," Smallwood says, "and one that we can fix right now."

IN 2009, THE OBAMA ADMINISTRATION, with the American Recovery and Reinvestment Act, made it easier — in fact advantageous — for wind companies to invest in new infrastructure. "It made it so that they could get an upfront cash payment for their (30 percent) tax credit," the National Renewable Energy Lab's Bob Thresher says. Around the same time, prices came down dramatically on the larger turbines that were thought to kill fewer birds. NextEra Energy agreed to begin repowering and relocating its Altamont wind farm turbines in 2010, following a settlement with the local Audubon chapter and other groups. In order to make sure they got it right, they hired Smallwood as their consultant.

Even the California Wind Energy Association's Nancy Rader now celebrates repowering. One project in the Altamont Pass showed "reductions in golden eagle fatalities substantially greater than 50 percent after one year of study," Rader wrote in a letter last year regarding the Desert Renewable Energy Conservation Plan.

"He's pretty outspoken and has strong opinions," Thresher says of Smallwood, "and he's never hesitant to express them. But we have a lot of respect for his work. We use him," he says, "because he has a critical eye."

Not all the energy companies in the Altamont have taken Smallwood's advice, however. One, Altamont Wind Inc., recently won an extension from Alameda County to delay repowering until 2018. In July, Bell and other observers watched in horror as a young golden eagle fitted with a transmitter went from normal flight speed to "zero speed, zero altitude" in a string of Altamont Wind's old-fashioned turbines. The bird had been hit before, rehabilitated, and triumphantly released into the wild just two months earlier. She crawled for 48 hours before a rancher came across her, still alive, with a fractured wing. She was later euthanized at an animal hospital.

"There's nothing sadder," Bell says, "than having to capture a crippled eagle."

U.S. FISH AND WILDLIFE'S BRICKEY says the agency is currently talking to the developers about ways to scare the birds away from photovoltaic plants or somehow warn them that what appears to be water and sky is actually glass. But no one has come up with any solutions. "We're still working on ways to help the birds," she says.

NextEra, BrightSource and NRG all claim to be monitoring their plants to assess their impact on birds. NextEra began a two-year avian monitoring program this year, in collaboration with federal and state agencies, but has so far found no evidence that birds are mistaking solar panels for water sources, says spokesman Steven Stengel. "It is only a theory," Stengel says. "It is too early to make any definitive conclusions." A year-long survey at Ivanpah published last April found evidence of as many as 3,500 annual bird kills, which Maisano calls "low" and "a reflection," Masiano wrote in an email, "of the extensive efforts that Ivanpah's owners have undertaken to help reduce avian mortality."

BrightSource and NRG have also enlisted help from an engineer at Sandia Labs, Clifford Ho, to argue that it's physically impossible for flux to vaporize birds; the birds fly too fast for that to happen. That claim conflicts with the observations of BLM personnel and biologists, who last January watched as 130 birds combusted mid-flight during a six-hour test of a power-tower plant, SolarReserve's Crescent Dunes facility near Tonopah, Nevada. The company says the problem arose because plant operators had focused thousands of mirrors at a single point in the sky while the plant was in standby mode, creating a shimmering halo of flux above the tower that birds couldn't see. When the mirrors were trained instead on random spots in the sky, none of them produced enough heat to scorch a bird.

No peer-reviewed analysis has yet verified that explanation, however, and the plant is not currently operating. Neither the Ivanpah survey nor NextEra's monitoring program have been subjected to the rigorous process of peer review. Data are scant and hard to come by: Now that the construction phase is over, California's Energy Commission no longer requires Ivanpah's operators to post compliance reports. Veronica Skelton, an NRG spokeswoman, refused to offer any details about mitigation efforts in an email exchange, saying only that "we are continuing to evaluate (avian deterrence devices) before we release more specific information."

Maisano agrees that "there is not adequate data to draw conclusions about the avian impacts at solar facilities." The U.S. Energy Department has just begun a new effort, says the National Renewable Energy Laboratory's Craig Turchi, as of Oct. 1, "to look in more specific detail" at solar's bird problem. "We don't have a lot of answers just yet," Turchi says. "At this point, we're still trying to figure out the questions."

Wildlife conflicts have nevertheless cast a pall over industrial renewable energy in California's deserts, one that deepens as solar panels installed on rooftops have dropped in price and, with Tesla batteries to back them up, become more useful to the grid. Back in December 2013, the Energy Commission denied BrightSource and Abengoa's petition to build the Palen plant, primarily out of concern for the birds. After the June hearings, the commission gave the go-ahead to a half-sized plant. (BrightSource has since pulled out; Abengoa plans to proceed alone with solar trough technology.) In June, the Los Angeles Department of Water and Power canceled a power purchase agreement with Bechtel's Soda Mountain Solar Plant near the Mojave National Preserve, because the plant would have blocked an important migration corridor for bighorn sheep.

A great blue heron found dead near an evaporation pond at the Genesis Solar site in the Chuckwalla Valley of Southern California.
GENESIS SOLAR ENERGY PROJECT MONTHLY COMPLIANCE REPORT #32 JUNE 2013 IN ITS REPORT TO THE CALIFORNIA ENERGY COMMISSION

The best hope for resolving the conflicts, and putting large renewable energy projects in the best places for both power generation and wildlife, rests on the promise of a conscientious study of the sort Smallwood and Thelander presented 11 years ago. The only peer-reviewed research on the subject of Big Solar and birds is still the one that was done in 1986, by Michael McCrary, at a tiny plant that no longer exists. Which means that regulators have approved, and solar developers have built, an impressive 6 gigawatts of industrial solar in California — enough to supply 5 percent of the state's electricity — without understanding, precisely and scientifically, how the technology affects the landscape.

"We want it all so we can maintain our lifestyle," says Smallwood, who has carried a dying eagle in his arms as it called up mournfully to its soaring cohort, following overhead. "But maybe it's our whole lives that have to change." □

Judith Lewis Mernit is a frequent contributor to *High Country News*. She has also written for *Sierra*, *Capital and Main*, *TakePart*, *The Atlantic* and *Los Angeles Magazine*. @judlew

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

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Mark your calendars for the 13th Annual Montana Organic Association Conference: "Cultivating Soils, Opportunities, and Relationships." Bozeman, Mont., Dec. 3-5, 2015. Learn about new markets for organic products and hear the latest organic research on Montana crops and livestock. Visit montanaorganicassociation.org for more information or call Lou Ann, 406-381-000.

EMPLOYMENT

Development Director — Eastern Sierra Land Trust is seeking an experienced Development Director who will lead our fundraising and development to achieve sustainable annual operating levels. She/he is an enthusiastic and effective fundraiser who will cultivate donor relationships and develop and manage a well-defined strategy for growing support to meet current and future operating needs. This position is based in Bishop, Calif., and is full-time, exempt and reports to the Executive Director. Salary is commensurate with experience and skills, with paid leave and health benefits. To apply and view a full job description, see: www.easternsierralandtrust.org/Pages/employment.html.

Grant Writer for Conservation Group — At the Center for Biological Diversity, we believe that the welfare of human beings is deeply linked to nature — to the existence in our world of a vast diversity of wild animals and plants. We are currently looking for a Grant Writer for our Membership and Development Program. This is a full-time position that can be located in Oakland, Calif. We seek a detail-oriented, motivated and highly effective communicator to join our development team. Under direction of the Chief Development Officer, the Grant Writer will aid our efforts to increase foundation funding revenues. The full posting can be seen at http://www.biologicaldiversity.org/about/jobs/index.html#grantwriter. To apply, send résumé, cover letter, and writing sample via email only to grantjob@biologicaldiversity.org. This position is available immediately and will remain open until filled. We are an EOE.

Seeking apprentices — Starting a career in regenerative agriculture? Want to develop technical skills in grassfed beef production, dairy management and cheesemaking, or heirloom tree grafting and cultivation? The Quivira Coalition New Agrarian Program seeks applicants for its eight-month (March to November 2016) on-site apprenticeships at the San Juan Ranch in Alamosa, Colo., James Ranch Artisan Cheese in Durango, Colo., and Tooley's Trees in Truchas, N.M. Compensation: stipend, housing, education fund. Apply by Dec. 1. Details and application at www.quiviracoalition.org. Questions? Email sarah@quiviracoalition.org.

Yosemite Conservancy seeks a Retail Operations Manager. Want to run a retail operation based in Yosemite National Park whose nonprofit mission is to enrich the visitor experience and philanthropically support the park? This leadership position requires a working knowledge of the retail and wholesale trades as well as National Park Service interpretive philosophies. For job description and application details, visit yosemiteconservancy.org/employment.

The Klamath-Siskiyou Wildlands Center seeks a full-time Communications Director. Located in Ashland, Ore., KS Wild is a voice for the forests, waters and wildlife of southwest Oregon and northwest California. The Communications Director will set and guide the strategy for all communications, website and public relations to consistently articulate KS Wild's conservation mission. Ideal candidates should have some nonprofit experience and related skills pertaining to website content, newsletters, social media and donor communications. KS Wild offers competitive salary, benefits and paid vacation and sick leave. For complete job description, visit www.kswild.org/.

Environmental Action Committee of West Marin in Point Reyes, Calif., seeks an Executive Director. Community-based group with great history of accomplishment. We work to save coastal dunes, wildlife in our state and local parks, the rural character of our region, the ocean and the coast. www.eacmarin.org. To view job requirements and application details, visit our website http://eacmarin.org/about-us/join-our-team. To apply: Submit an application letter, a résumé, a writing sample, and three references to board@eacmarin.org. No phone calls please. Application closing date is Nov. 30, 2015. We will consider acting earlier if an extraordinary candidate needs an earlier decision.

Wildlife Biologist and Forester seeks a good place on the planet to care for. Salaried position only. www.northwindsforestry.com.

High Country News (HCN), a nonprofit multimedia news outlet, seeks a part-time marketing graphic designer to create marketing, advertising and development department marketing materials for both print and digital platforms. Candidates should have a background in both marketing and graphic design, experience working on teams, and the ability to work across digital and print platforms. This part-time position works out of *HCN*'s office in Paonia, Colo. To apply, send cover letter and résumé to jobs@hcn.org. *HCN* is an Equal Opportunity Employer committed to a diverse work force. For full job description, visit www.hcn.org/about/jobs.

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A marriage of unequals

In *Leaving Before the Rains Come*, her fifth nonfiction book, Wyoming writer Alexandra Fuller traces the unsteady arc of her marriage, from its shaky foundation in southern Africa to its final unraveling in Jackson Hole, Wyoming.

Fuller's many readers will recognize characters and events from her traumatic (and comic) childhood in war-torn British Rhodesia, now Zimbabwe, which she wrote about in the bestselling *Don't Let's Go to the Dogs Tonight*. But although her new book covers some of the same terrain, this memoir unspools in a steadier, wiser voice. Fuller reflects on how her chaotic early years, rife with loss and disease, created a deep craving for stability, calm and safety, which she attempted to satisfy as an adult by marrying an American named Charlie Ross.

Leaving Before the Rains Come
Alexandra Fuller
258 pages, hardcover: $26.95.
Penguin Press, 2015.

After she nearly dies of malaria in Zambia while caring for her newborn daughter, Fuller and her family move to the United States. There, in the shadow of the Tetons, she finds herself swept into American life, with its surfeit of security and predictability: "Americans were not expected to encounter unexpected, surprising hazards. … Mile markers along trails reminded us … how far it was back to the car." Fuller marvels at those around her who take up outdoor activities just "for the adrenaline," a sharp contrast to her life in Africa: "Most people I knew, myself included, had been saturated by enough of that hormone by early childhood to last a lifetime."

But the differences that at first provide relief eventually drive a wedge between Fuller and her husband. "He saw the world in concrete terms, rationally, as if the place were solid and the systems … were dependable," she writes. "I saw the world as something fluid; I expected irrationality and mild madness, and most of the time I did not think the gap between the two was important." Fuller digs into both the long line of instability in her own extended family and the legacy of buried suffering in her husband's.

When her marriage finally frays and she embarks on a solo life, she finds unexpected comfort in the wry humor and unflinching stoicism of her parents. "What I didn't know (as a child) is that the assurances I needed couldn't be had," she writes. "I did not know that for the things that unhorse you, for the things that wreck you … there is no conventional guard."

BY KATHERINE E. STANDEFER

Wolves *continued from page 7*

the state; a range rider might cost up to $20,000 for an entire season.)

"There's the idea that folks out here (in eastern Washington) hate wolves or love wolves, and you have to be one or the other," Kehne says. "But a lot of people aren't that way. They're in the middle, they're pragmatic."

Indeed, the state's ranching community has proven more amenable than might be expected, and has been cautiously, if at times skeptically, supportive of state efforts to reintegrate wolves as painlessly as possible. "I think the WDFW has great conflict specialists on the ground," says Jack Field, vice president of the Washington Cattlemen's Association. "They have shown a significant willingness to put producers' interests first."

"I don't like (wolves) and I think the state has too many of them."

–Justin Hedrick, president of the Stevens County Cattlemen's Association

But the ranchers' tolerance has its limits, especially in the state's northeastern corner. In 2014, when a wolf killed a cow and calf in Ferry County, county officials declared a state of emergency. And Stevens County commissioners passed a resolution saying that citizens had the constitutional right to shoot wolves. (Wildlife officials had to send a letter reminding the citizens that they did not actually have such a right.) At a forum in Spokane last February, Hedrick made his own feelings about wolves clear, along with those of many of his colleagues in the Stevens County cattlemen's association: "I don't like them," he said, "and I think the state has too many of them."

Wildlife department biologists hope to have a lot more wolves: They say it won't be until at least 2021 that there will be enough animals around the state to remove the species from its endangered list, thereby potentially loosening restrictions on killing them. That's where the 15 breeding pairs (as opposed to packs) goal comes in: There must be four in each of three regions — eastern Washington, the Northern Cascades, and the Southern Cascades/northwest coast area — as well as three breeding pairs anywhere else — for at least three consecutive years. The state currently has just five breeding pairs, four of which are in eastern Washington, and that number has stayed steady since 2011, while the state's overall wolf population has nearly doubled.

As a result, ranchers and their political allies in the northeast are increasingly frustrated, feeling that they have to shoulder most of the financial and spiritual burden of the rest of the state's wolf love. Some have even refused to participate in compensation programs for cattle losses on the grounds that to do so would be a form of tacit approval. "Producers (in the northeast) have to endure almost all of the impacts," Fields says. "And they feel that it's pretty one-sided."

To make it less so, ranchers argue that they need more flexibility to deal with problem wolves than the state allows. But here, they confront the peculiar patchwork of management oversight in Washington. Wolves in the northeast are no longer covered by the federal Endangered Species Act, meaning that lethal control is at least an option when wildlife-livestock conflicts occur, as is true with other large predators, such as cougars and bears. But wolves in Washington's western two-thirds are still federally protected, and those protections supersede the state's plan. That's why, when wolves killed a yearling cow in central Washington this summer, the state could do nothing.

But the state regards killing wolves as a last resort, anyway. Just twice to date, the wildlife department has had wolves shot when they could not be otherwise deterred from attacking livestock, and each time has been politically fraught. In 2012, seven members of the Wedge Pack were shot, amid accusations from wolf advocates that the rancher whose cattle were killed had done nothing at all to prevent it. And in August of 2014, after wolves

killed more than two dozen sheep in Stevens County, officials mistakenly shot the breeding female of the Huckleberry Pack, enraging wolf advocates who feared the pack would dissolve without its alpha. Ranchers were equally irate: A sheepherder had been forced to move his herd off his own property because of wolves, they said, yet the government saw fit to kill only one of them.

"We've got wolves on the landscape in Washington," Fields says. He's resigned to it; as he says, echoing the feelings of many ranchers, "It doesn't matter what I think." But he looks forward to the day when the livestock community can treat wolves like cougars, bears or other predators, dealing with the ones that cause trouble without all the fuss. After all, he wonders, isn't that what everyone else wants, too? For wolves to resume their old place among the state's biota, just like everything else?

Ware agrees that something like that would be the ideal outcome. "The biggest challenge has been bringing all the sides to a common understanding of what successful wolf management means," he says. "Biologically, they're doing just fine. The question is whether they'll be accepted, and I like to think we'll get there. It will just take time." □

A curious gray wolf from the Lookout Pack in northeast Washington encounters a trail-cam. Trail-cam photos like this can help wildlife officials document wolf presence and estimate pack composition, reproductive status and territory use.
DAVID MOSKOWITZ

The author, Brian Calvert, pauses while weaving through Colorado's Raggeds Wilderness on a hunt last fall.
BROOKE WARREN

Growing up with guns

OPINION BY BRIAN CALVERT

I grew up with guns. I never had one as a toy — not the BB or pellet guns that the other boys got for Christmas or birthdays. I had deadly, violent and powerful guns, for hunting. We were taught that there's no such thing as an empty gun, and that you never, ever, point a gun at anything you don't intend to kill.

My first rifle was a 20-gauge shotgun, single-shot, break-open, and its barrel was a cold swirl of metal. I carried it proudly through the deep sagebrush of the Wyoming prairie, following my stepfather and his black Lab, hunting grouse, or through the willows of the river bottoms, hunting ducks. We hunted to eat, and sometimes at dinner you'd bite on a chunk of birdshot still lodged in the breast of some fowl.

My stepfather had seen plenty of violence in Vietnam, and he loved guns. To him, a well-crafted gun, which he defined as one that could fire repeatedly without jamming, was maybe the most beautiful thing in the world. He had a collection of guns, including an old-fashioned muzzleloader.

Once a year, he would grow a beard and dress in buckskin as a mountain man for a local pageant, where he would enter the shooting contest. He once brought home a card he had shot in half — the ace of spades. I envied his skill, his confidence with these machines, with their dark oil and smoke.

In my family, everyone got a hunting license, and everybody hunted big game. It was the best way to keep the deep-freeze stocked over the winter. Elk, deer, antelope — whatever you could get and as much as you could get.

When I was 14, my grandfather, a banjo-playing hunter, trapper and outfitter, among many other things, gave me one of his old rifles. It was a .264 Winchester magnum with a long barrel and a polished scope. It had been my uncle's, and its stock carried a crosshatch pattern he'd carved himself. I was small for my age and struggled to haul the rifle through the cold woods of autumn when hunting season came.

One day, it was my turn to sit in the aspens and wait. Somewhere down the mountain, my mother and stepfather walked through the timber, driving the deer. I sat on a cold, shaded hillside, trying not to fidget, knowing my foot was falling asleep. Then a branch snapped, and a buck deer appeared, maybe 50 yards below me, breathing heavy from running uphill, but slowing to a trot, then a walk.

> There was a certain thrill with having made the shot, and a sudden dread of what that implied, of what I'd so easily taken.

I set my rifle across a fallen tree and peered through the scope. The buck was beautiful, his silver coat shimmering with each breath, ears cocked, black eyes dark, like obsidian. I placed the dot of the scope on his neck. Inhaled. Exhaled. Squeezed the trigger.

Killed instantly, he dropped to the ground, and my heart heaved. There was a certain thrill with having made the shot, and a sudden dread of what that implied, of what I'd so easily taken.

I've been thinking about that deer these past days. I think of the weight I felt in killing it, of the debt it left me with. That old rifle is in my closet, thrumming with power, as I write this.

I know we as a nation must do more to control the violence guns bring into the world. I know, too, that many people like me think that gun ownership is a part of our American tradition, especially here in the West. That may be true, but guns have also become part of something terrible that happens again and again in a cycle of senseless murder. So I am beginning to think that as a society, we are not responsible enough to be trusted with them. Their power has come to outstrip our collective moral capabilities. Something has to change.

Of course, some families like mine prided themselves on using guns responsibly. But there's no guarantee. Not even my grandfather, who lived with guns his whole life, was in full control over his weapons. On a day in November, a few years ago, newly divorced and hurting, my grandfather sat on the porch with his favorite pistol. Then he shot and killed himself. Another life, so easily taken. □

Brian Calvert is the managing editor of High Country News *in Paonia, Colorado.*

WEB EXTRA
To see all the current Writers on the Range columns, and archives, visit *HCN*'s Web site, **hcn.org**

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.

THE TRASH WITHOUT, AND WITHIN

WHEN I MOVED TO A SMALL TOWN IN CALIFORNIA'S MOJAVE DESERT LAST SPRING, I FOUND MYSELF IN A NEW RELATIONSHIP WITH GARBAGE.

There's some serious junk festering in the sands of the Southwest: toxic dumps, airplane graveyards, nuclear test sites. An abandoned disposal site in Yuma, Arizona, holds a mountain of toxic e-waste from California. The Mesquite Regional Landfill in Imperial County, near the Mexican border, takes in rail-transported loads of garbage from Los Angeles. And the lonely section of the Mojave between Victorville and Las Vegas is known to be a choice stretch of body-dumping territory.

It makes for an odd and sometimes grim American miscellany. But the longer I'm here, the more inevitable the combination of desert and trash seems to be.

We live in a country that promises eternal newness. But we've never been great at dealing with yesterday's new — the old new, the long-dead new, the new stuff that's no longer shiny. It haunts us, gathering dust in the corners, lingering in the air like an unpleasant smell. It makes us uncomfortable, cluttering our lives. So we cast it away — into an emptiness that seems to dwarf it, a place where nobody will notice it.

This gesture makes sense, if you assume vastness and cleanliness are the same. They aren't, of course. But it's hard to remember that from our usual vantage on the desert — which is from a distance.

Even here in Southern California, I can climb away from what we leave behind. The scramble up 10,834-foot Mount San Jacinto is itself a kind of cleansing. The last half hour to the peak is a crawl over white boulders, like chunks of old hardened clouds, before a last breathless balance up the highest slab. At the top, 360 degrees of pure perception is yours for the turning, the taking, while the desert stretches its vast and apparently golden carpet far below.

The power of erasure can seem unlimited, at least until it comes up against some of the hardest trash to get rid of: the personal kind. As I get acquainted with the desert's landscape of castoffs, I recall long-lost trash of my own. The Little Debbie wrappers, leftovers and wadded-up paper scattered around raccoon-raided cans in my childhood backyard in Florida; the stale peanut butter and marshmallows we used to trap said raccoons and release them by the creek; the decorative bunches of eucalyptus that I hauled from a dumpster and sold to neighbors out of my Radio Flyer wagon. The many apartment furnishings I gathered curbside on garbage collection days in Los Angeles. The pink sweatbands that found their way from my trash in New York City onto the head and wrists of a homeless man at the next subway station.

I think most of us have bagged and tied off all kinds of memories and feelings, buried them deep, left them to decompose, hoping that they'll somehow disappear in the vastness of time and experience. But our memories and desires are not so easily disposed of. Periodic radioactivity of the heart is part of the human condition. We've all got some personal Waste Isolation Pilot Plant inside.

"Throwing away" just might be the dominant fiction of American consciousness. It's the flipside of the American dream, a dark corollary to the myth of the West: The ability to become whatever you desire requires the ability to toss things away without looking back. We handle our personal garbage pretty irresponsibly. Perhaps, if we're serious about valuing our environment, it behooves us to value our inner landscapes, too, expanding the notion of "sustainability" so that it includes more than just physical ways of being. Emotional trash may not disappear easily, but it's a hardy material. It can be reused. Recycled. Whether for love, art or the common good, there's tremendous power in learning to own what we wish we could just throw away.

So, in an awkward move toward reintegration, I am making an inventory of what I find as I dig into my own exterior and interior deserts:

Kleenex. Three peach pits. A wad of masking tape. Cat poop. Bad drafts of poems.

An empty box of assumptions. Old grudges. Some limitations. Some hopes, some sadness, some fear.

And this glazed, broken bowl that, if I bend over it at just the right angle, throws back a blurred reflection. □

Elizabeth Wyatt is a writer and artist based in Joshua Tree, California.

Trash picked up in Section 33, a nature preserve bordering Twentynine Palms Highway, includes a military training plan and a plastic water jug.
KATHERINE BALL

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HEARD AROUND THE WEST | BY BETSY MARSTON

CALIFORNIA
Mikelis Beitiks, 32, is running for the U.S. Senate in California on a platform with just one plank: He promises to do nothing but "monomaniacally create and support legislation that combats climate change." After all, as he says on his website, iwillnotdonothing.org, none of the other issues — ISIS, Obamacare, Russia, immigration reform — really matter "because we're all going to die."

WASHINGTON
Eight-year-old Gabi Mann befriended a murder of crows and some pigeons a few years ago and fed them daily. In return, reports the *Seattle Post-Intelligencer*, they left her "gifts of beakable bits of refuse collected from the posh central Seattle neighborhood." But as the birds communicated with other birds about the free food, some of Gabi's human neighbors began to complain about what they left behind — messy droppings covering houses, cars and lawns. Recently, 51 homeowners signed a petition against the bird feedings, and two neighbors sued Gabi's parents, citing the 1963 film *The Birds*: "No one wants to be trapped living inside an Alfred Hitchcock horror movie."

COLORADO
In Colorado's Roaring Fork Valley, which links Aspen, Carbondale and Glenwood Springs, there's a growing income gap: Some residents are lucky enough to own three homes, reports the *Colorado Post-Independent*, while others are forced to work three jobs. The weekly called its five-part series on the issue "The Price of Paradise," and one of its more startling findings was that a two-career family who moved from San Francisco could not afford a house in the Roaring Fork Valley. Meanwhile, commuting time keeps getting longer. Whew.

THE WEST
***Colorado Outdoors* magazine shared some great** tips for "wapiti wooing." ("Wapiti," if you're wondering, probably derives from the Shawnee word for "white rump.") For bull elk, for instance, it helps to grow the biggest rack possible, even though antlers get shed and regrown every year. Bigger is apparently always better in the eyes of discerning cows: "It certainly can pay to carry 40-plus pounds of bone on your head." But corralling and mating with cows is tough work, and bulls may lose up to 20 percent of their body mass from their battles with wannabe suitors. Not surprisingly, those fought-over females tend to have a longer life span than their lovers.

NEW MEXICO **Call 1-800-WeWantOurLandBack.**
GREG GLASSMAN

IDAHO
If you're a male student at Brigham Young University, Idaho, don't even think of sporting a "man bun," the hairstyle that features a topknot flanked by shaved hair on the sides of the head. It's not a conventional look and therefore considered "an extreme hairstyle," according to Tyler Barton, a student honor administrator. "It's just something that deviates from the norm." *The Scroll*, the student newspaper, reports that the bun ban applies to employees of the private college, too.

CALIFORNIA
When wildfire ravaged the land around the central California town of Jackson, population 4,600, the Jackson Rancheria and Casino Resort prudently asked its guests to leave. But the hotel didn't stay empty for long, says resident Ruth Cornell. "They then opened the hotel to evacuees from the Butte Fire, set up a buffet for meals, and fed 1,000 people three meals a day for a week, ending Sept. 19." Entertainers scheduled to appear at the hotel pitched in, too, and entertained the displaced families, some of whom camped in the hotel's RV Park and parking lots. Members of the community and local churches also donated so much, from tents, fresh produce and clothes, that the excess was sent to people fleeing from the Valley Fire, north of San Francisco. "I thought this story was worth telling," says Cornell.

MONTANA
Those who fear "mayhem around the corner," whether fire, ice or a government takeover, should talk to real estate broker Theresa Mondale in western Montana. Her specialty is finding homes so remote that residents can weather the worst modern life can throw at them. Or so they fervently hope. "Survival property isn't just for fanatics," Mondale insists. "Still, it's a business where deals are done with guns holstered at the hip and locations are often undisclosed," reports the *Missoula Independent*. Some of the properties Mondale handles are accessible only by boat, while others lie underground; she just sold one near Hamilton that was billed as an "extreme survival complex," with a state-of-the art, 1,780-square-foot bunker hidden beneath a dull metal building. "For a lot of people," Mondale says, "that's their fantasy world-reality." Preparedness is the byword of these buyers, who call themselves "preppers." Meanwhile, those of us who see the world through a slightly less dire lens are mere "sheeple," pawns of "the system" who are oblivious to the coming Armageddon. As Mondale puts it, "My personal opinion: The zombie apocalypse, it's here right now."

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

"But there can be mirages in deserts. The project surely enriched farming in a valley, but **it remains unclear who really benefitted.**"

Todd Shallat and Scott Lowe, in their essay, "One hundred years of concrete," from Writers on the Range, hcn.org/wotr