

High Country News

For people who care about the West

Copyright High Country News

Of Birds and Men

Piecing together a 50-year restoration in San Francisco's South Bay, one species at a time.

By Nick Neely. Page 10.

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Human nature



"Nature is almost everywhere," wrote environmental journalist Emma Marris in her buzz-generating 2011 book *Rambunctious Garden: Saving Nature in a Post-Wild World*. "But wherever it is, there is one thing that

nature is not: pristine."

Humanity's imprint is unavoidable, even deep in the backcountry. Smog frequently blankets Sequoia National Park, yellowing the needles of ponderosa and Jeffrey pines, and slowing their growth. Nitrogen pumped into the atmosphere by power plants, farms and cars has changed the chemistry of lakes in Rocky Mountain National Park. There are few places on Earth where the buzz of planes and cars isn't, at times, audible. Almost every Western river of any magnitude has been dammed. And then, of course, there's climate change.

Welcome to the Anthropocene, the "age of man." More than a decade ago, atmospheric chemist Paul Crutzen popularized the term, arguing that this new epoch dawned as early as the late 18th century. "A long-held religious and philosophical idea — humans as the masters of planet Earth — has turned into a stark reality," he wrote recently on *Yale Environment 360*.

But though "pristine" wilderness may have vanished long ago, nature persists. It's all around us, in city parks, in national parks, on our farms and in our gardens. And we can care for it without leaving it alone. As Marris wrote in an online *New York Times* debate last year: "We have a choice. We can write the whole planet off as irrecoverably ruined, or we can redefine 'good' and 'bad.' And this is where it gets tricky. What 'good' replaces pristineness? Biodiversity? Ecosystem services that benefit humans? Beauty?"

These aren't just lofty questions for ivory-tower thinkers. As Nick Neely reports in this issue's cover story, scientists and land managers are grappling with them in concrete ways as they undertake the most ambitious wetland restoration project on the West Coast.

San Francisco's South Bay is one of the most invaded aquatic ecosystems in the world. Industrial salt ponds have all but replaced wetlands. Yet wildlife — both native and non-native — has survived and even thrived in this altered landscape in surprising ways. Threatened snowy plovers, displaced from other coastal habitat by human activity, have taken refuge there. So have California gulls. (Their arrival, as you'll see, has its downsides.) The endangered California clapper rail, meanwhile, has hung on thanks partly to invasive grass that has squeezed out native flora.

Now, thousands of acres of salt ponds are being reopened to the tides. It's a messy, uncertain process, rife with tough choices. The Bay will eventually become a new version of its old self. It won't be pristine, but it will still be wild and unpredictable. And in the process, it may be redeemed, as a fundamental natural process — the rise and fall of the tides — is finally allowed to exercise its influence again, alongside our own.

—Cally Carswell, assistant editor

A California gull, which eats gull eggs (shown here) as well as those of other species.
MICHAEL KERN AND THE GARDENS OF EDEN



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Piecing together a 50-year restoration in San Francisco's South Bay, one species at a time.
By Nick Neely

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COVER

A California gull comes in for a landing on the gull-filled flats of the South San Francisco Bay salt ponds.

MICHAEL KERN AND THE GARDENS OF EDEN

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NEIL LARUBBIO

Afield with a vegan gas man

An interview with Eric Sanford, whose job involves telling landowners his company plans to drill for gas on their property:
<http://hcne.ws/NIAAtF3>.

JOIN THE CONVERSATION

"Your article reminded me of constant road trips on Route 66 with no form of entertainment except for counting telephone poles, while I pleaded for my dad to stop at each and every curio and tipi stand en route. As a result of that lifestyle, I am forever a nomad and a frequent Southwest road warrior."

—Reader Hank Miller, commenting on Diane Sylvain's essay about her nomadic childhood, "Following Dad down the road" <http://hcne.ws/NIAH8H>

GET THE FREE APP



<http://hcne.ws/wuZsWu>

"(The Klamath Basin Restoration Agreement) is not going to go anywhere at all. It's slowly dying on the vine."

—New Klamath County, Ore., Commissioner Tom Mallams on a \$1 billion collaborative deal that proponents hoped would end the area's brutal water wars by offering farmers more certain water deliveries, while removing dams to support salmon runs and restoring land to tribes. Now, Tea Party-backed candidates like Mallams have unseated many local politicians who had backed the deal, eroding the support necessary for congressional buy-in. *The New York Times*

SMOKE SIGNALS

Lessons burned?

What the High Park Fire can teach us about defensible space

RIST CANYON, COLORADO

Dave Cantor's house in the hills outside Fort Collins usually draws friends for barbecue, horseshoes and recreational shooting on July 4. This July 3, though, Cantor sifts through its ashy remains, tripping over a downed power line and catching rotten whiffs from a freezer pried open by black bears.

Cantor, who co-owns a string of coffee shops, fled the day the 87,000-acre High Park Fire blew up in early June, with just his "dogs, guns, hard drive and a bag of dirty clothes." But Cantor, who's lived here since 1998, wasn't extremely worried; he and his neighbors had diligently cleared trees and brush around their properties on Whale Rock Road — creating what's known as "defensible space" — and used fire-resistant building materials.

Such measures are meant to protect structures from wildfire, and people in fire-prone areas have increasingly adopted them over the past decade. Despite

BY JOSHUA ZAFFOS



Dave Cantor walks through the ashes of his home in the wildland-urban interface near Fort Collins, Colorado. His was among the 259 homes that burned to the ground in the High Park Fire in early June. A second Colorado wildfire, the Waldo Canyon, consumed another 350 homes weeks later. JOSHUA ZAFFOS

Whale Rock residents' efforts, though, 40 of the 54 widely dispersed houses here were reduced to rubble. Whether the destruction caused by recent wildfires is a sign of inadequate execution or the failure of fire-safe strategies is a topic that researchers, firefighters and policy analysts are now debating.

"We have a pretty wide lack of awareness for the realities we'll be subjected to when we move into these types of locations," says Jack Cohen of the U.S. Forest Service's FireLab in Missoula, Mont. "At this point, we need to change the perception of houses being victims of fire to one of them being fuel."

Over the last 20 years, roughly 250,000 people have moved into Colorado's wildland-urban interface, where houses infiltrate forests, often in modern subdivisions. One out of every four homes in the

state is in a high-risk fire zone, according to an analysis by *I-News Network*, a Colorado investigative journalism outlet. At the same time, wildfires have ballooned in numbers, size and intensity due to fuels buildup and drought. It's the same around the West.

Such communities account for much of the destruction during extreme blazes as well as for spiraling firefighting costs, which disproportionately go toward protecting lives and houses. The High Park Fire killed one woman and destroyed 259 homes. In late June, the 19,000-acre Waldo Canyon Fire tore through a Colorado Springs suburb, demolishing nearly 350 homes and killing an elderly couple.

Cohen studies how structures ignite during blazes. His work contributed to the development of Firewise, a program of the nonprofit National Fire Protection As-

Please see Lessons burned, page 5

SNAPSHOT

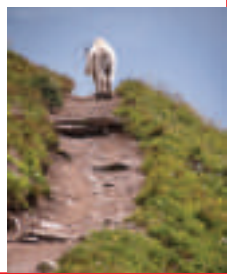
A divided trail comes together

At 3,100 miles, the Continental Divide Trail is the most rugged and least used of the country's three major long-distance hiking trails. In January, when financial troubles forced the Continental Divide Trail Alliance to close its doors, it also became the only long-distance trail without a formal advocacy group. Since then, nonprofits throughout the Rockies have scrambled to continue protecting private lands around the trail from development, coordinate maintenance and raise awareness of the route. In early July, the Continental Divide Trail Coalition, a group founded by ex-Alliance staffers, became the trail's new voice. The coalition will focus on protecting and promoting the CDT, leaving the expensive and time-consuming work of maintenance to state groups, says co-founder Teresa Martinez.

EMILY GUERIN

MONTANA and IDAHO

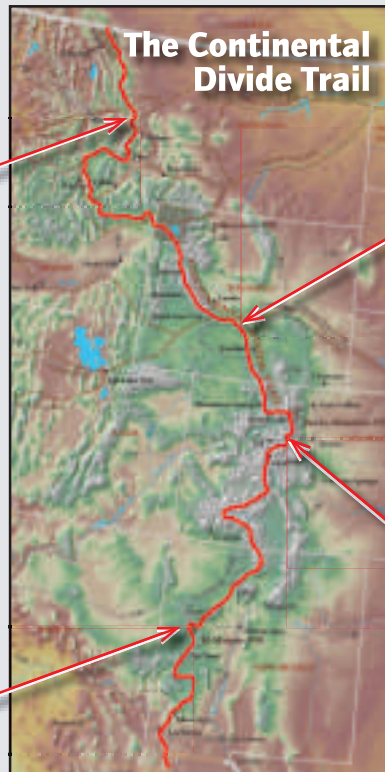
The CDT follows the rugged border between the two states, but is only 58 percent complete. Hikers must bushwhack or road hike to connect sections of trail. The Montana Wilderness Alliance is working to fill these gaps and maintain existing trail.



BIG PHOTOGRAPHY, CC VIA FLICKR

NEW MEXICO

New Mexico's portion of the trail is maintained by a patchwork of nonprofit and Forest Service crews. The trail is 80 percent complete here, but hikers must slog long distances between cow troughs — some of the only water sources around.



MAP COURTESY MONTANA WILDERNESS ASSOCIATION

WYOMING

The most desolate portion of the trail is also the least organized; Wyoming has no unified trail maintenance or construction.

COLORADO



BRIAN AND JACLYN DRUM, CC VIA FLICKR

The Colorado Trail Foundation maintains the 230 miles of the CDT where it overlaps with the Colorado Trail. The U.S. Forest Service and various nonprofits care for the remaining 503 miles. The trail reaches its highest point on Grays Peak, elevation 14,270.

MARTIN BRAVENBOER, CC VIA FLICKR



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

WHERE THERE'S A WILL, THERE'S A WAY

Paul Larmer's editor's note and the feature article by Greg Hanscom each present a valid point: The multibillion-dollar outdoor industry makes a minuscule contribution to conservation (*HCN*, 7/23/12, "The Hardest Climb").

But take a look on the other side of the fence: The Federal Aid in Wildlife Restoration Act, passed in 1938 in the middle of the Great Depression, put an 11 percent excise tax on sporting arms and ammunition. Collected at the manufacturers' level, the federal government apportioned these funds for state wildlife research and surveys, habitat acquisition and management, and related education. The hunting community and the firearms industry enthusiastically endorsed this concept.

In 1950, the parallel Federal Aid in Sport Fish Restoration Act passed, also with industry and angler support, placing an excise tax on sports fishing equipment. This money is dedicated to state management, conservation and restoration of fishery resources.

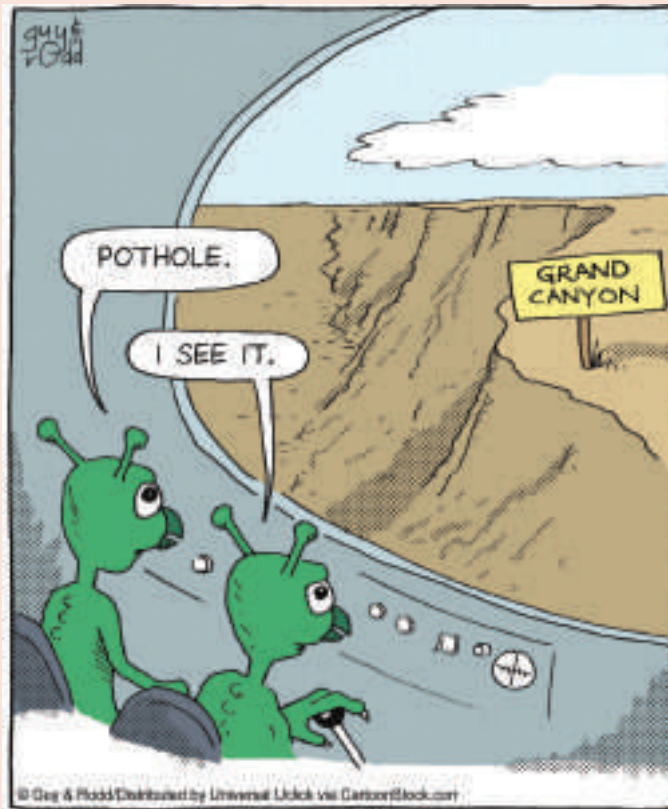
Since their inception, these two industry taxes have contributed more than \$12 billion to conservation. However, neither of these programs directly supports species that are not hunted or fished. So in 1996, an attempt was made to pass another program to support conservation of all species. This Fish and Wildlife Diversity Funding Initiative program would be paid for with an excise tax of up to 5 percent on other outdoor products, raising about \$350 million per year for general wildlife conservation, recreation support and education. It failed because of opposition from anti-tax groups and some members of the outdoor industry.

To paraphrase and build on what Paul Larmer wrote: Surely, this robust outdoor industry and its clientele can — and should — do more to support conservation.

Warren Aney
Tigard, Oregon

FAREWELL, ED QUILLEN

I'm not much on being anyone's fan, but I will have to live with my failure to ever write in to thank Ed Quillen for repeatedly sharing his knowledge and sharp, long-view perceptions that felt as right and big as the West (*HCN*, 6/25/12, "Dear Friends"). I never met Ed. I didn't always agree with him. But I have lost



a friend and precious rare scholar. It's a damn good thing that I read every word of every issue, or I wouldn't even have known of our loss. Thanks so much, and so long, Ed. (Columnist and *HCN* contributor Ed Quillen passed away at his home in Salida, Colo., June 3.)

Dave Mandel
El Cerrito, California

'POSTMORTEMISM'

Your issue covering off-the-beaten-track Western places of interest is very appealing to those of us who prefer reality travel over canned tourism (*HCN*, 6/25/12, "Touring the Postmodern West"). It seems more honest than the usual "family vacation" photo ops. I also found the descriptions of land art and industrial landscape art interesting. While some of us would prefer to see landscapes untouched by humans, we also recognize the need for expression and interpretation of highly disturbed landscapes. However, I wonder if industrial or reclamation art might better be known as "postmortem" art instead of some form of postmodernism. "Postmortemism" seems more appropriate.

Keith Roe
Vestal, New York

HAIL THE AB

Thank you for the superb article on the plight of red abalone along the Northern California Coast. (*HCN*, 6/11/12,

"Gastropodan Crimes"). Growing up in Crockett, in the San Francisco Bay Area's East Bay, my brother and I spent more than a few days of our youth out in that frigid, four-foot-visibility water, being knocked around by the surge, searching for the mythical 10-inch ab. We both ended up finding one over the years of diving, along with many seven-to-eight inchers. I hope your article will bring exposure to the illegal poaching, and help maintain a sustainable abalone fishery.

Scott McKay
Nephi, Utah

FROM THE WEB

Posted in response to Emily Guerin's blog "Grand Cacophony National Park?", at *hcn.org*, an expanded version of the snapshot "(Not so) quiet canyon," which ran in our 7/23/12 issue.

POLITICAL PAWNS

I was backcountry packing in the Grand Canyon in 2010 and subjected to relentless fixed-wing overflights echoing off the canyon walls (*HCN*, 7/23/12, "(Not so) quiet canyon"). The topography amplified the sound of this aircraft and the result was a ridiculous intrusion of noise into a very remote wilderness area. Sen. McCain is a little too "flexible" in the presence of money to be able to protect the interests of his own constituency — most politicians are. Our electoral system is so prone to corruption that we get negative outcomes for most people most of the time. When do we get the corrupting influence of money out of our electoral system?

Charles Fox
Santa Fe, New Mexico

GUTTED PROTECTIONS, GUTLESS POLITICIANS

I am weary of politicians who "gut" the rules and regulations intended to protect human health and the environment (*HCN*, 7/23/12, "(Not so) quiet canyon"). They all seem to play the jobs/economy card, when in fact the deterioration of the environment leads to situations that cost the taxpayers money and citizens their health (and therefore money). Even noise can negatively impact human health and the environment. If you don't believe that, at least be concerned that campaign contributors can cause senators and others to flip-flop!

Joan Bartz
Kennewick, Washington

Lessons burned *continued from page 3*

sociation, which offers guidelines to help safeguard homes. Cantor and many of his neighbors used them to guide their thinning efforts. Neighborhoods that go further and adhere to a set of specific rules are recognized as official Firewise Communities; there are hundreds in Western states.

Forest managers and firefighters have supported such efforts since the passage of George W. Bush's 2003 Healthy Forests Restoration Act, which created community wildfire protection plans to evaluate risks and thin forests. Around Fort Collins and Colorado Springs, managers offered house-by-house assessments to identify hazards and to plan for fire responses and evacuations. Similar initiatives aid fire preparedness in communities in Arizona, New Mexico and Washington. Stimulus funds have continued outreach and paid for thinning.

Geoff Butler, a captain with theoudre Fire Authority, serving Fort Collins and surrounding areas, says inventories of year-round residents and the locations of gates and water resources have increased firefighter safety during the recent fires. Whether the exercises improved resiliency of rural houses is a matter for closer study. "Given the events of the last few years, we have very fertile ground for research on (Colorado's) Front Range," Butler says.

The Colorado Springs fire marshal used federal funds to rank fire risks for the 36,000 homes in the foothills of Pikes Peak and otherwise assist homeowners. One offi-

cial Firewise neighborhood, Cedar Heights, followed program practices, thinning trees in nearby open spaces, and didn't lose a single home during the Waldo Canyon Fire. Individual efforts in other areas, specifically the decimated Mountain Shadows subdivision, proved less effective.

It's hard to say why one subdivision burned and another didn't. But fire-safe measures are often hamstrung if only some residents employ them. And most fire-minded landowners, including those on Whale Rock, pick and choose which practices suit them — hardly ideal, says Cohen. Plus, the gradual implementation isn't keeping up with the population boom in the wildland-urban interface.

The federal government isn't doing much better at insulating neighborhoods from fire danger on surrounding public land. "A lot of acres have been treated, but they've been dispersed across the landscape," says Tony Cheng, director of Colorado State University's Colorado Forest Restoration Institute. In order to be effective, scientists say, thinning should cover larger areas, and break up the density and distribution of timber and brush that fuel flames.

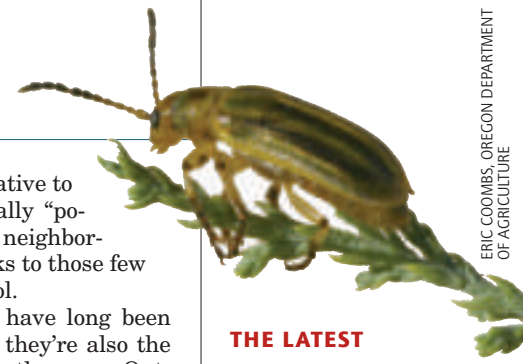
Efforts on public and private lands are often poorly coordinated, according to Cheng's research of community wildfire plans in eight states, including Colorado, Montana, Oregon and California. Federal projects tend to occur where managers can most accessibly clear fuels rather than in places that pose the worst hazard but may be more expensive. Prescribed

burns are a cheap alternative to thinning, but are generally "politically unsavory" near neighborhoods, Cheng says, thanks to those few that expand out-of-control.

Local land-use rules have long been a proposed solution, but they're also the hide-scorched elephant in the room. Outside California, where wildfires have been burning communities since the 1990s, most city and county officials have been unwilling to enact or enforce development restrictions for the interface, such as prohibiting wood shingles. Just as society developed fire-safety codes for apartment buildings, theaters and other public spaces, basic rules, such as requiring mountain subdivisions to have multiple access points, should be no-brainers, says Tom Cova, a University of Utah geography professor who studies development patterns in fire-prone areas.

Still, Cohen and others believe education rather than regulation will encourage adoption of Firewise principles. "Cultural understanding of fire needs to evolve if we're going to navigate an uncertain future, including the climate," says Cheng.

Back at the end of Whale Rock Road, Cantor notes that roughly half of his neighbors don't plan to return. He wants to rebuild, however. He scans thick stands of charred and beetle-stricken pines and considers which trees to cut next summer. "That's what I've been doing for 14 years, thinning the forest around my house," he says. "But if there's a firestorm, it doesn't really matter." □



ERIC COOMBS, OREGON DEPARTMENT OF AGRICULTURE

THE LATEST

Backstory

In 2001, the U.S. Department of Agriculture began **importing tamarisk leaf beetles from Kazakhstan and northwestern China to devour the invasive tamarisks flourishing along Southwestern rivers** (*HCN*, 11/26/07, "Beetle Warfare"). At first, the light-sensitive beetles only thrived north of the 38th parallel, which cuts through southern Colorado and Utah. There, the longer mid-spring and summer days matched those in their homeland. Farther south, however, the shorter days forced the beetles into early hibernation; then, they awoke too early in the spring and died.

Followup

Scientists recently discovered that **beetles in the south have adapted to fit those new daylight conditions** and now delay their hibernation by two weeks. This means they survive until spring and are multiplying and munching on more tamarisks. Using tamarisk leaf beetles is "a very cost-effective way of containing the weed," says study co-author Tom Dudley, principal investigator at UC Santa Barbara's Riparian Invasive Research Laboratory.

BRENDON BOSWORTH

UNCOMMON WESTERNER

The secret gardens

Botanist Madrona Murphy wants to revive a Native staple

Skull Island sits in Massacre Bay, in Washington's San Juan archipelago. Here, in 1858, Haida raiders killed a band of Coast Salish and left the bones behind. I can think of other, perhaps more cheery spots to look for flowers, but Madrona Murphy's enthusiasm is unstanched.

"Look!" she calls as our boat nudges against shore. "There's some camas right over there." She hikes over the rocks along the beach toward some large blue flowers. Her bright orange safety vest must be visible from Canada, but she wants to appear official: The federal Bureau of Land Management manages Skull Island, and few regulations govern its use. "I don't want someone to see a lot of people crawling around here and get ideas," she says.

BY ERIC WAGNER



Camas, once a staple of Coast Salish tribes, has been found on more than half of the vegetated San Juan Islands, hidden in small patches in relatively inaccessible spots. COURTESY KWIÄHT CENTER

In a square-meter patch of the camas, she measures the tallest plant, which stands over two feet, then counts other plant species, and records the distance to a band of orange lichen along the shore. The lichen marks the reach of sea spray,

which will likely climb if oceans rise as projected; camas, she explains, is not terribly salt tolerant.

Murphy, 31, is a botanist with the Kwiäht Center for Historical Ecology of the Salish Sea, based on nearby Lopez



Coast Salish tribal members in 1900s, San Juan Islands. COURTESY KWIÁHT CENTER

The idea that the Coast Salish and other Northwest Native Americans cultivated plants was disputed

until relatively recently. Famed anthropologist Franz Boas and his disciples argued that Native Americans didn't need to cultivate plants thanks to abundant salmon runs; they could subsist on wild forage instead.

According to Doug Deur, an anthropologist at Portland State University, Boas disregarded ample evidence to the contrary. He thought he was being benevolent: The idea that people who were predominantly hunter-gatherers could have a culture as rich and complicated as that of the Coast Salish stood in radical opposition to more Eurocentric theories of cultural evolution. These held that hunter-gatherers were by definition savage, and therefore were improved when forced to convert to European technologies and living standards.

But there were consequences to such willful blindness. Native Americans who later tried — and continue to try — to make land claims based on old family agricultural plots were denied. What use did fisher-folk have for land, anyway?

—Eric Wagner

Island, her home. Since 2007, she has helped survey the 1,000 or so BLM acres patchworked throughout the San Juans for biological and cultural resources. With Russel Barsh, the director of the Kwiáht Center, and Nick Teague, the local BLM ranger, she notes the spread of invasive species like blackberry and counts insects, all with an eye to an eventual management plan.

But she keeps a special watch out for camas. For the Coast Salish of the San Juans, it was a dietary staple. Tribes cultivated it in large gardens, subdivided into family-owned plots passed down through generations. These were fertilized with seaweed, cleared of weeds and stones, and burned to control brush and grass. With European settlement, though, the potato became the tribe's tuber of choice. The gardens were swallowed by farms and developments, and camas faded into memory, just one among many beautiful wildflowers.

To Murphy, it is the botanical equivalent of deposited royalty, and it is time it was restored to its former station.

On Skull Island, Murphy points out camas, chocolate lily and wild onion, all of which the Coast Salish grew for food, though she doubts they were actively cultivated here. The patches are too random, and food plants have a way of hitchhiking hither and yon. We spot a small pear tree. "Probably someone had a picnic and tossed the core away," she says.

As she walks, her face brightens at the sight of some uncommon inch-tall

plant with a tiny flower within a field of what to me seem its identical, far more common relatives. She became interested in plants as a child, she says, and stopped paying attention to anything else. She seems to know the Latin binomial of every plant she sees, as well as its associated lore. "Ethnobotanists use people to ask questions about plants," she says. "I use plants to figure out what people are doing."

Until recently, camas was thought rare in the San Juans. That may have been because people were looking in the wrong places. Ethnographic evidence suggests that the Coast Salish used small islands for camas gardening. It would have been easier to control pests there — mainly deer — and to weed out death camas, the bulbs of which look like camas but are decidedly inedible. Also, camas bulbs would have been easier to dig from the islands' thinner soils. (Camas has a contractile root. "It can literally crawl under rocks," Murphy says. "Wild harvest would be incredibly frustrating.")

Murphy has surveyed more than 40 uninhabited islands and found camas on over 50 percent of the vegetated ones. Most are hidden in small, wild patches in relatively inaccessible spots, but three sites she thinks were once gardens. Those especially interest Murphy, who wants to return camas to its old haunts, and perhaps cultivate it. The Coast Salish cooked the bulbs for a day and a half over hot coals, in pits covered with grass and dirt. They could be eaten immediately, used as a sweetener, or mashed into cakes and dried. "As food plants," Murphy says, "they would be really well-adapted: They don't need irrigation, they don't

have pests." She herself has never eaten the bulbs — the ones she keeps in a seed bank are too valuable — but Barsh has. He says they taste like caramelized onion, but without the onion flavor — just the sweet.

At day's end, Murphy takes me to a known relic garden she found five years ago, on Blind Island. It looks like most of the other patches of camas we've seen, but she points out a spot under an aggressive sprawl of blackberry where the turf has been pulled back, perhaps by otters. "Look at the soil," she says. "See how black it is." That means that charcoal was mixed in. The soil is also unstratified — another sign of caretaking. She picks some up and rubs it in her hands. The earth stains her fingers.

Although the physical evidence goes back only 200 years, Murphy suspects that Native Americans cultivated camas for over 2,000. "The Coast Salish are frustrating to archaeologists," she says. "A lot of their culture was very compostable, so there aren't many beautiful artifacts." Instead, there is a rich biological record of their diet: middens stippled with shell and bone that sit under picnic tables at state parks, or meadows of wild onion growing beneath young pear trees, or relic camas gardens, tucked in shadow.

Murphy sets about her survey. The camas here is tall, and buzzing with bees. "We're here at the peak of blooming," she says. "Look at how the bees are almost pushing each other off the stamens, they're so excited." We watch for a few minutes as they smear themselves with pollen. Then we get back in the boat, leaving the garden to its newest tenders. □

ERIC WAGNER



Botanist Madrona Murphy (above) studies a patch of camas on Skull Island in Washington's San Juan Islands. Above right, camas bulb flowers and bulbs. At right, spots around the islands where camas is being monitored and collected.



COURTESY KWIÁHT CENTER (2)



A water truck fills up at a depot near Watford City, North Dakota, while another heads back to a well site that will need up to 800 such loads for fracking.

NICHOLAS KUSNETZ

THE LATEST

Backstory

Seven years ago, the International Mountain Bicycling Association (IMBA) convinced the National Park Service to consider the possibility of opening park trails to biking (*HCN*, 5/30/05, "Mountain bike association wheels into national parks"). Groups such as the Sierra Club worried that increased access for bikers would jeopardize proposed wilderness in parks. IMBA has often opposed new wilderness because it's off-limits to mountain biking.

Followup

This month, the agency gave park superintendents the power to open new or existing trails to mountain bikers. That doesn't mean trails in Yosemite or Glacier will be suddenly swarming with bikes. Environmental analyses must be completed before any trails are opened, and bikes remain prohibited from "eligible, study, proposed, recommended, and designated wilderness areas." A few trails in Texas' Big Bend National Park may see bikers in the next few years, but for now, IMBA is mostly eyeing existing access roads currently closed to the public.

NEIL LARUBBIO



Mountain bikers already are allowed access to the 100-mile-long White Rim Trail in Canyonlands National Park. More access for mountain bikers may follow.

NPS

RIPPLE EFFECTS

The Bakken's shadow boom

The nation's biggest oil play puts stiff new demands on North Dakota's water

The first thing you notice in North Dakota's oil patch are trucks. They dominate a landscape defined not long ago by cattle and wheat, and not long before that by bison and grass. Trucks groan through Watford City all night. They pile up traffic on highways designed for the occasional car or combine and whip dirt roads into dust storms that locals mistake for prairie fires. They're the first thing anyone mentions when you ask what has happened here in western North Dakota.

Thanks to the Bakken shale, the state has become the country's second-biggest oil-producer practically overnight. And while the world still runs on oil, with the rise of hydraulic fracturing, or fracking, oil increasingly runs on water. Drillers inject 1 million to 3.5 million gallons of pressurized water into each well to shatter the rock and free the oil. More of the trucks you see are carrying water than anything else, some 400 to 800 truckloads per well.

In the low, early-morning light one fall day, the trucks are already lined up eight deep at a water depot outside Watford City. In the time it takes to smoke a cigarette, one trucker from Minnesota pumps 4,200 gallons from the ground into his chrome tanker. The job is good enough that, after two years of living away from home, he says his wife will soon be joining him here.

The water business is good for locals, too. Several dozen farmers and ranchers with access to water and \$150,000 to spend have built water depots like this one — trailer-sized aluminum pumpsheds with eight-inch pipes sticking out of the sides. These private water sellers pulled in \$25 million to \$30 million last

year, according to Steve Mortenson, who heads the Independent Water Providers, a group that represents the industry in the state capital. Several local towns have built depots to sell excess municipal water, pulling in another \$10 million or so last year, Mortenson estimates, a substantial sum given their average population of a few thousand people.

The sales are raising uncomfortable questions in a region where fewer than 15 inches of rain falls each year. In many places, the nearest water is 1,000 feet down in a large aquifer that flows freely to the surface in low-lying areas. But it recharges slowly, and the level at which it flows without pumping is dropping more than a foot per year from overuse. Meanwhile, most of the fracking water comes from a series of smaller, shallower aquifers, some of which are already stretched to meet drinking and irrigation needs. The Missouri River has begun to provide some relief, though federal agencies are already tussling over the possible negative effects of withdrawals. To make matters worse, the fracking water ends up contaminated and must be injected thousands of feet underground, removing it from the hydrologic cycle.

There's plenty to supply the oil companies for now, says Bob Shaver, director of the water appropriations division for the Water Commission, which monitors the state's aquifers and regulates all surface and groundwater withdrawals. The best estimate for oil-field use is about 3 billion gallons, based on last year's activity, with demand projected to double over the next decade. But it's only a matter of time before the state's water is fully appropriated, he says, and any new use will have noticeable effects. That day is nearing as the oil rush

drives population growth in rural areas with little infrastructure, further straining water supplies. McKenzie County, in the heart of the boom, has grown 20 percent in two years.

Each new depot draws more opposition from neighbors and other interests, Shaver says, highlighting the resource's increasing value — and scarcity. "To me, water is going to be the oil of the 21st century."

Nationwide, energy companies have been using more and more water for hydraulic fracturing over the past decade, spurring worries about impacts, from the arid West, where many rivers are fully appropriated, to relatively water-wealthy Pennsylvania. The EPA estimates that fracking uses between 70 billion and 140 billion gallons of water total each year. That's small compared to irrigation, which uses about 128 billion gallons every day. But much of the irrigation water runs into the ground or streams, and a lot of the rest evaporates to rain down elsewhere. In contrast, water used for oil and gas is usually disposed of or otherwise removed from the system. Even relatively small withdrawals can have local impacts.

"Will oil and gas use limit other uses?" asks Reagan Waskom, director of Colorado State University's Colorado Water Institute. In dry years such as this, he says, the answer is sometimes yes. So far, it's seldom happened. But Colorado officials project the industry's water consumption for fracking will grow 20 percent over the next three years, to more than 6 billion gallons per year.

Meanwhile, during last year's drought in Texas, drilling hardly slowed even as farmers and ranchers lost crops and cattle, and towns restricted water use. Regulators predict the annual fracking-water use there will triple over the next decade to 39 billion gallons. Environmental groups in the state have begun pushing the Legislature to enact

Please see **Bakken**, page 20

BY NICHOLAS KUSNETZ

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For more than 30 years, Sara Wiles has photographed life on Wyoming's Wind River Reservation, a community she first encountered as a social worker in 1973. Wiles, who was adopted by Arapaho elder Frances C'Hair, is clearly close to the people portrayed in *Arapaho Journeys*, an "ethnographic mosaic." The black-and-white shots of reservation life — whether portraits of community leaders and children, or scenes of freshly killed elk being butchered — are woven together with the subjects' own stories, creating a rich and contextualized history. Wiles refuses to focus on poverty and uses ceremonial images sparingly. She set out to represent the Arapahos without stoking stereotypes, and she does so *niihi* — in a good way.

Arapaho Journeys: Photographs and Stories from the Wind River Reservation

Sara Wiles, 262 pages, hardcover: \$35. University of Oklahoma Press, 2011.

The Iron Cloud Drum Group pictured in Lander, Wyoming (above). Baillie and Tommy White (left) outside the Arapaho Cultural Museum, St. Michael's Mission, Ethete, Wyoming.

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New HCN interns
Brendon Bosworth
and Emily Guerin,
in Paonia for
"journalism
boot camp," not
to mention the
apricots. NEIL LARUBBIO

Welcome, new interns!

It's that time of year again — when two fresh-faced interns join us in our Paonia, Colo., offices for six months of "journalism boot camp." We're also delighted to announce that the talented and diligent **Neil LaRubbio**, intern from the last session, will remain with us for another six months as our editorial fellow.

It's been a big year for new intern **Brendon Bosworth**. The Cape Town, South Africa, native turned 30, finished his master's in journalism at the University of Colorado Boulder, and landed his first desk job ever — here at *HCN*. As a freelance journalist and lifelong surfer, he's traveled in Namibia, Mozambique, Angola and Indonesia, and covered subjects as varied as homophobia, the FIFA World Cup and marine pollution. That last story, reported in 2009, was his first stab at investigative environmental reporting, and working on it showed **Brendon how science can help people better understand their communities** — if they can just make it past the jargon. "Science isn't easily understandable if you're a general reader, so there's a real space for journalists," he says. A Fulbright scholarship catapulted Brendon to Boulder, where, along with some friends, he started the school's first online student-run environmental publication. Brendon hopes to return to South Africa and work as an environmental reporter. "I feel there's quite a need for that back home," he says.

Emily Guerin got a taste for investigative reporting while digging into the back stories of dilapidated homes in Portland, Maine, for the local monthly, *The Bollard*. After a year and a half writing the aptly named column "That's My Dump!", she reported for weekly newspaper *The Forecaster*. She also delved into Maine's archaic bail system for the Maine Center for Public Interest Reporting. She is particularly amused when slippery characters underestimate her because they see her as unimposing, just "small and cute." The dream of every journalist, she says, is that "the right people will read your stories and do something about them." The Massachusetts native has long felt the call of the West; she recently completed a wilderness instructor course at the National Outdoor Leadership School in Lander, Wyo., and aims to use her experience at *HCN* to forge a career as a freelance journalist who can lead trips on the side. When not at work, or scaling challenging rock faces, she can be found hanging from the ceiling at the intern house in an attempt to beat her own pull-up record.

FAREWELL TO PHILIP FRADKIN

Western environmental writer and historian **Philip Fradkin** died on July 8 at his home in Point Reyes Station, Calif., at the age of 77. Born in New York City, he attended Williams College in Massachusetts and joined the Army after graduation. There, he discovered his true calling when he was asked to write for a newspaper on a troop carrier. In the 1960s, he went to work for the *Los Angeles Times* and became that paper's first environmental reporter. "I wanted an occupation that would put me in contact with as wide a range of experiences and people as possible," he told *HCN* contributor Tony Davis in a 2010 interview. "I'm curious about the human condition." He eventually went to work for Gov. Jerry Brown during Brown's first administration, and helped to create the California Coastal Act. In 1981, Philip published *A River No More*, which broke new ground by adding up the demands on the Colorado River and revealing how dangerously overallocated it was. He later wrote books about Nevada's nuclear downwinders and the 1906 San Francisco earthquake, as well as biographies of acclaimed writer Wallace Stegner and of vanished wanderer Everett Ruess. At the end of our 2010 interview, Philip said that he had discovered a new creative outlet: photography. "It's nice to just travel without knowing I have to come back with some specific amount of information to put into a receptacle. You may never hear from me again." We're sad indeed to think that we won't be hearing from Philip Fradkin again.



Philip Fradkin. ALEX FRADKIN

CORRECTION

We misidentified the climber pictured on page 16 of our July 23 issue. The photo shows **Glenn Randall**, and it was taken by **Peter Metcalf** after their 1980 climb of Mount Hunter. "We were all in similar condition," Metcalf recalls. "Elated, euphoric, emaciated and frostbit." *HCN* regrets the error.

—Emily Guerin, Brendon Bosworth and
Jodi Peterson for the staff

Of Birds and Men

Piecing together a 50-year restoration in San Francisco's South Bay, one species at a time

Were on patrol. Caitlin Robinson-Nilsen, a young biologist in shades and a ponytail, steered the 4WD Explorer along a muddy levee in Fremont, Calif., and I rode shotgun, staying vigilant. She surveys snowy plovers — adorable, six-inch, two-ounce, skittering shorebirds, with black collars and eye-patches — as the waterbird program director for the San Francisco Bay Bird Observatory. But we weren't after plovers that April day last spring. We were cruising the South Bay's vast salt pond system in search of something larger, more dangerous. Through the windshield was a strange land of water and sky, rimmed with office parks. They're out there. They'll steal your lunch.

We were looking for California gulls. Trash birds, some say — but that's only a partial description of their diet. They also adeptly hunt and devour the eggs and chicks of waterbirds like plovers — many with a tenuous hold on disappearing habitat. Now, on the metropolis' coattails, the Bay's California gull population is going gangbusters. To make matters worse, 23,000 of them — roughly half the Bay's population — were displaced from their nesting grounds when the levees of A6, a 330-acre salt pond, were breached in 2010, returning it to the tides as part of the South Bay Salt Pond Restoration Project.

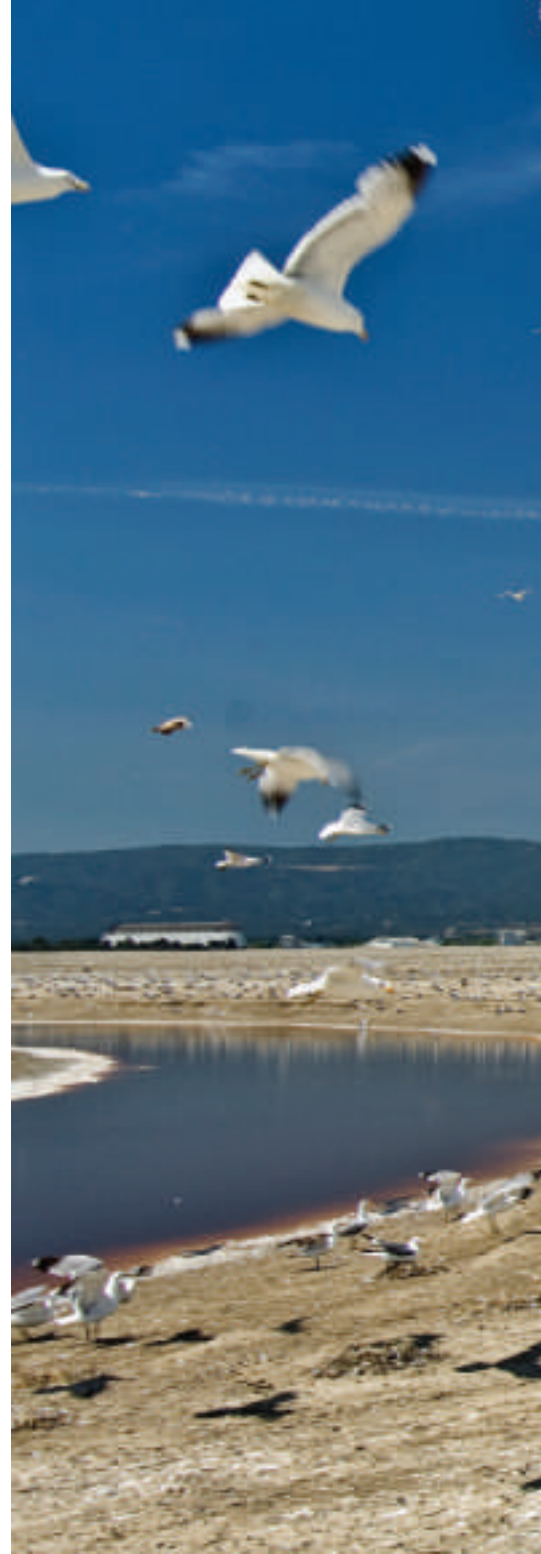
The gulls were on the loose, hunting for new homes, and no one, least of all Robinson-Nilsen, wanted them settling near plovers. It was one of many unintended consequences of the largest

FREMONT, CALIFORNIA

wetlands restoration on the West Coast. Break down one barrier, others are likely to crumble. Restoration is seldom as simple as banishing exotics and promoting natives; it's a series of trade-offs, and the odds are that not every species will come out ahead. Nor is it easy to delineate which species actually belong in an ecosystem as radically transformed by people and invasive species as the South Bay. Still, this restoration, like most, is optimistic: It hopes we can all be winners.

Gulls are good at winning, and well-suited to human sprawl; snowy plovers, not so much. *Charadrius nivosus* is an undeniably endearing bird, found all over the world. But it's a nervous soul, unsettled by tall structures. Telephone poles? As scary as hills. Their subtle nest scrapes and camouflaged eggs are found only on beaches, gravel river bars and sand and salt flats, right where humans like to build high-rises and vacation homes, walk dogs and drive ATVs, activities that can disturb or destroy nests. As if that weren't enough, snowies also have to contend with European beachgrass and climate change swallowing up shoreline nesting grounds. And now, an explosion of gulls.

Two subspecies of snowies exist in North America, the Cuban along the Gulf Coast, and the western, which consists of distinct inland and coastal populations. The latter — Robinson-Nilsen's charge — ranges from southern Washington to the tip of Baja, but most reside in the Bay Area and southward. In 1978, both the inland and coastal



western snowies became species of special concern in California, but only the coastal birds were listed as threatened under the Endangered Species Act, in 1993.

The first statewide survey between 1977 and 1980 found snowies missing from 33 of 53 known coastal breeding locations. In the Bay Area, 351 birds were counted. By 1991, there were only 176. The low — 72 — came in 2003. Since then, the numbers rose to about 250. But this year, just 147 were spotted. The Bay Area is thought to host 5 to 10 percent of the entire coastal breeding population, almost all of them in the salt ponds. It's primo habitat: light-colored expanses to blend in while nesting;



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wet edges for hunting brine flies, using the run-stop-peck approach; and blessedly few people, since it's mostly off-limits to the public.

April to May is peak migration, and western sandpipers dotted every shallows. They were innocent. We passed them by. Up to a million migrating waterbirds stop in the San Francisco Bay on their journeys to their Northern breeding grounds, but Robinson-Nilsen spends her entire field season here, turning circles. Originally from Vermont, she discovered her passion for threatened piping plovers on Long Island. She studied snowies for her master's at San Jose State, and it became her dream job: "Anything to do with nesting plovers."

She listens to the wind or to NPR, seldom bored. But as we zigzagged, she confessed, "I end up talking to the birds a lot."

When we reached the levee between A22 and A23 — A for Alviso, a marsh-side community in northern San Jose — there they were: A flock of roosting gulls, insouciantly ruffling their feathers, and ours, in the breeze. They're pretty snowy themselves, with a black ring and red spot on their yellow bill, and a four-foot wingspan. She counted them through her open window, jotting "110" in the California gull column of her datasheet. "Quite a bit less," she said.

But even one was too many: This was one of the bird observatory's "no gull

zones." Earlier in the month, an irksome 700 had loafed here, right between two ponds with a handful of nesting plovers. "We were like, 'Oh, my goodness, we'll never be able to keep them off,'" Robinson-Nilsen remembered. The bird observatory began hazing them twice daily, and when we arrived, things seemed under control. "Once they lay eggs, they're protected by the Migratory Bird Act," said Robinson-Nilsen. "So we're putting in a big effort now."

We drove onto the levee, spattered with whitewash, chicken and rib bones, like the mouth of an ogre's cave. Robinson-Nilsen pointed south. "That big 'mountain' is Newby Island Landfill," she said. "Hundreds, if not thousands, of

USGS biologists in the California gull colony at Pond A6, part of the South Bay Salt Pond Restoration Project where the gulls are encouraged to nest.

JUDY IRVING
© PELICAN MEDIA

In the breeze, you could smell the Bay's fecundity, its ability to heal itself.

gulls feed there everyday." To the north was another landfill, making this levee an ideal midway hangout. We parked, stared the gulls down. It wasn't high noon, but close enough. On Robinson-Nilsen's command, we swung our doors wide and sprang out. She blew a silver pea whistle bought in Chinatown, and the sound carried like a battle cry. I wielded my notebook. The gulls flinched, scattering with a few resentful meows. Small, sweet payback, I thought, for all those pilfered hotdogs.

PERHAPS YOU'VE SEEN this place from above. Banking north toward San Francisco International Airport's tarmacs — themselves built on former wetland — the mosaic of rectangular and irregular ponds ringed by the South Bay's sprawl look like puzzle pieces, or strange agricultural fields. The more startling the color, the saltier the water: With evaporation, those blue-green with algae become saturated with orange brine shrimp, and later, red blooms of bacteria. Many ponds show the sinuous traces of former marsh channels.

The ponds exist because the South Bay is especially windy, which accelerates evaporation. Native Americans, the Ohlone, gathered salt for trade long before others sold it to Sierra Nevada silver mines to process ore. The first salt ponds were constructed around 1860. When all was said and dug, about 85 percent of the Bay Area's leg-swallowing wetlands were gone: filled and built upon, or in the case of the salt ponds, diked off from the

tides. Just as the pond systems were designed so that increasingly saline water could be ushered toward central "crystallizer beds," ponds once owned by more than 100 small companies were eventually bought up by just one. The agribusiness giant Cargill still operates 11,000 acres here, producing 650,000 tons of salt annually — 4 billion shakers' worth.

For decades, scientists and conservationists recognized the value of restoring tidal marsh, but only recently did a big opportunity present itself, when Cargill decided to scale back its holdings. Encouraged by local environmental groups such as Save the Bay, Sen. Dianne Feinstein, D, stepped forward to finesse a deal. In 2003, the state, with support from federal agencies and local foundations, paid Cargill \$100 million for land that included 15,100 acres of salt pond.

With that, the West's largest, most ambitious wetland restoration was born, spanning a triangle of South Bay pond complexes: the A and R ponds, owned and managed by the U.S. Fish and Wildlife Service; and the E ponds, belonging to the California Department of Fish and Game (*see map below*). The California Coastal Conservancy leads an impressive coalition that includes these agencies, the U.S. Army Corps of Engineers, local water and flood control districts, and supporting science organizations like the U.S. Geological Survey and the bird observatory.

The goal is to return salt pond to the original marsh, providing habitat for species like the endangered California clapper rail and

salt marsh harvest mouse, while improving the Bay's water quality and protecting Silicon Valley's high-flown but low-lying real estate from flooding. California sea levels are predicted to lift as much as five-and-a-half feet by 2100 due to climate change, and tidal marsh is the first defense, a sponge that absorbs storm surges and slowly wrings them out.

Once rooted, marsh filters runoff and captures sediment, so to a degree, it's self-preserving, rising and falling with the ocean. But the Bay Area's severely fragmented marsh and dependent animals may not be able to keep up with rapid sea level change. Thus, the biggest restoration — on par, in size, with the largest in the Everglades and Chesapeake Bay — is a race against rising tides. The estimated \$1 billion public-private endeavor aims to restore 5 to 10 percent of the Bay Area's wetlands in 50 years, as part of a larger push to reclaim a quarter overall. (About \$600,000 of that money, though, is slated for flood control levees.)

A6 was one of the first ponds returned to the tides. Dubbed "the Duck's Head" because of its shape, the pond lacked a "water control structure" (a fancy name for a gate), and after the winter's rains, it dried to a hard, crusty pan. Protected from raccoons and coyotes by a moat-like ditch, the 23,000 nesting gulls gradually sprawled like tract housing across its salty flat. But when Robinson-Nilsen and I arrived, A6 looked like ocean. Power lines crisscrossed the horizon and the hangars of NASA's Moffett Field loomed to the west. But in the breeze, you could smell the Bay's fecundity, its ability to heal itself.

When A6 will become marsh again is anyone's guess. Once, its bottom was at sea level; now, it's six feet below. The land subsided as agriculture drew down the water table, causing deep alluvial layers to dry up and settle — forever increasing flood risks. Alviso is especially vulnerable: Some areas are 13 feet below sea level. A devastating flood in 1983 left neighborhoods 10 feet underwater.

"A6 is an experiment," says Cheryl Strong, a wildlife biologist for the Don Edwards San Francisco Bay National Wildlife Refuge, which encompasses the A and R ponds. "It's going to take awhile before we've got enough sediment for the pond to be above the tide line. I mean, it's going to be *aaawhillllle*." In 2011, the breached pond collected nine inches of fresh sediment, but it may take 50 years or more for mature marsh to appear.

Robinson-Nilsen panned her Swarovski scope down a former A6 levee that the restoration project had broken apart and mounded into a dashed line of islets. In the long run, they'll provide dry, vegetative shelter for creatures during high tides. But until enough sediment settles, they'll be submerged periodically. Through the scope, they seemed bare mud, except for the marsh seeds and propagules we couldn't see — and the thousands of gulls we could.



SOURCES: GOOGLE MAPS/SOUTH BAY SALT POND RESTORATION PROJECT

“There’s a lot of copulating going on,” Robinson-Nilsen casually reported. A gull flew overhead, hauling a stick for a nest probably destined to be flooded. By counting the birds in a single scope view, and counting the views, she estimated 3,000 gulls, just a fraction of A6’s former colony. Robinson-Nilsen was glad to see them sticking it out, well clear of the snowiest spots.

YOU CAN’T BLAME the gulls. In the web of ecology, there are many knots that are difficult to untangle. Right about when the gulls first appeared in the South Bay, something unusual happened at salty Mono Lake, clear across the state on the dry side of the Sierra Nevada. Since 1941, the city of Los Angeles had siphoned water from the lake’s tributaries 350 miles south to faucets. The lake dropped 45 feet in 40 years, and in 1977, a land bridge formed between the sagebrush mainland and Mono’s second largest island, Negit.

California gulls typically breed inland, from the Great Basin to Manitoba. (It’s the Utah state bird, in fact, the “seagull” that saved Mormon settlers’ crops from a katydid plague.) About 50,000 of them nested at Mono each year, two-thirds on Negit, feasting on brine shrimp and alkali flies before wintering on the coast. But suddenly, coyotes could stroll over to the island. The gulls abandoned ship in 1979, settling on surrounding islets, where many remain. Negit became an island again, but it’s still gull-free.

Curiously, though, since then a decline of Mono’s summer California gull numbers has correlated almost exactly with the rise of the South Bay colonies. In 1980, the first nests were spotted: 24 gulls, on a salt pond island. In 1982, less than 200. In 2010, 46,000. That’s nearly exponential growth: the myth of the inexhaustible West played out by a bird. The population likely snowballed in the city for many reasons; you can’t pin it on Negit’s land bridge alone. But the parallels are striking.

Now, A6’s displaced gulls also have to go somewhere. “We don’t really want the gulls in the Bay,” says Robinson-Nilsen, “but we don’t want to force our problem on other people, like Alcatraz and the Farallones.” The Farallones, a cluster of rugged islands 30 miles offshore, are known for seabird rookeries with their own slew of problems. They don’t need a plague of rogue gulls. And surely researchers would haze them right back around.

If the gulls remain in the Bay, the restoration team would prefer they resettle near A6 or join another existing colony, where their impact on other species is at least known. Call it smart growth: No new sprawl, only infill. In fact, the restoration team decided not to evict one 10,000-gull colony near the plover’s primary stronghold in the E ponds — E for Eden Landing Ecological Reserve — for fear of further upsetting the status quo. “At least they’re not nest-



Caitlin Robinson-Nilsen examines a snowy plover egg at the E Ponds in the South Bay (top). Snowy plovers (above), are tiny shorebirds, whose offspring can fall prey to larger birds like California gulls. MICHAEL KERN AND THE GARDENS OF EDEN



“You just can’t make a tidal marsh where it hasn’t been before. We can do a lot of things, but we haven’t figured out how to control the tides.”

—Cory Overton, USGS wildlife biologist

ing in the middle of a plover pond,” says Robinson-Nilsen.

We were now driving a nine-mile loop of levees open to joggers. In the distance, the white, upswept tents of Mountain View’s Shoreline Amphitheatre — a rock ‘n’ roll pavilion whose lawn seating is the flank of another landfill — mirrored Cargill’s towering salt stacks. We stopped to survey a boisterous colony of gulls that had cropped up beside A14, just east of A6 and a good distance from the “no gull zones.” Robinson-Nilsen counted 4,500 gulls, up from last week’s 3,000. Since there were no eggs yet, we strolled a short way into the colony. I wasn’t sure if it was a wise decision. “Of course, I forgot my raincoat today, but this would be a pretty good place to wear it,” said Robinson-Nilsen. The gulls rose like a handful of salt flung into the wind. They hovered in the airstream, white crosses barking down at us. We were surrounded.

At first, Robinson-Nilsen didn’t care for the gulls, but now, she says, “I find them completely fascinating. They’re beautiful, and very good parents. I respect that they dive-bomb us and poop on us, and hit us on the head.” My jacket was Gore-Tex and hooded, but luckily it wasn’t quite bombs away. The gulls were still building “nest bowls” in the humped dirt, lined with sticks, minor construction debris and decorative items from the Newby Island landfill and beyond: chicken bones, Barbie limbs, and once, said Robinson-Nilsen, a plastic French fry.

Years ago, 20,000 or 30,000 gulls were said to have gathered at Newby Island, when the winds were right. So many circled above the refuse that employees complained of vertigo. The landfills became to gulls what refrigerators are to teenage boys or the moon to tides: Of “over-riding importance (to their) movements,” as Josh Ackerman, a U.S. Geological Sur-

vey biologist studying the South Bay’s avocets, stilts, terns and gulls, wrote in a recent report. In 2008, Ackerman’s team attached radio-transmitters to gulls, and discovered they reliably put in a long day at Newby Island, arriving fairly punctually at 6 a.m. to meet the first wave of trash, and punching the clock with the last truck at about 6 p.m.

“I’m sure it’s not good for them,” says Robinson-Nilsen, of the menu. “Most of it’s not good for us.” Good, of course, is a relative term: California gulls are one of the few birds able to raise a brood on garbage. Yet the landfills haven’t taken pressure off the South Bay’s waterbirds: They’ve established the gull’s home range right where more than half of the South Bay’s waterbirds nest. In 2008, gulls snatched up a gluttonous 61 percent of avocet chicks and eggs here. Of the 212 Forster’s terns Ackerman’s team recently radio-tagged, the gulls digested about half — worrisome, considering the salt ponds hold a quarter of the Pacific Flyway’s population

The gulls’ toll on the plovers in the E ponds is unknown, but given a Bay Area population of fewer than 250, any consumption hurts. In the bird observatory’s office in Milpitas, Robinson-Nilsen showed me evidence from a camera trained on plover nests: A hapless plover flushes. Ten awful seconds later, a gull lands and chokes down three supposedly camouflaged eggs so fast the footage looks accelerated.

In response, Newby Island has begun an ambitious abatement program, employing a falconer, and pyrotechnicians in fluorescent vests and hardhats who fire off “bird bombs” and “whistlers” that leave hanging spirals of smoke in the air. When I visited, hundreds of gulls landed sneakily on a ridge behind a sharp-shooter. Eventually, he discovered them,

turned and fired. They sprang off, like plastic shopping bags swept up in a gust.

Barriers between waste and wildlife are expensive to rebuild. This program costs several hundred thousand dollars annually. At least it works. Twice a month, Robinson-Nilsen surveys Newby Island. The flock has thinned dramatically. “If they stop eating at the landfill, then the population will decline or plateau,” she says. “And if that means they turn to wild sources (of food), well, it’s worth having a few tough years for our birds.”

BUT THE SOUTH BAY’S AVOCETS, stilts and snowy plovers may face an even bigger menace than California gulls: the restoration itself. Converting pond to marsh will make the ecosystem healthier overall, but reduce the birds’ niches. In fact, before the salt ponds appeared with their vacant stretches, snowy plovers probably didn’t nest around the Bay’s rim. They were found on San Francisco’s Ocean Beach, in Pacifica, and around Half-Moon Bay — places they no longer breed because of increased human traffic. Nor were nesting avocets and terns as common bayside, since there were few sparsely vegetated islands. Forster’s terns only colonized in 1948, on dredge spoil islands left in salt pond corners. Like the gulls, these birds are dependent on the mess we made.

Should we worry about gulls seizing plovers and other birds if those species didn’t live here historically? “When it comes to this restoration, as far as what were baseline conditions, there really is no such thing,” Josh Ackerman says. “Most people would argue that the baseline state is the present.” We don’t know, precisely, the ecological equation of old; even if we did, the conditions that created and sustained it are long gone, and there are responsibilities, now, to additional



agencies. In other words, the very word “restoration” should be taken with a grain of salt. Those redesigning the ponds are juggling a vision of the past with today’s reality — and moving forward.

Two options have been proposed: In the minimum “50/50” scenario — which would leave many ponds intact — only half of the 15,100 acres would be reopened to the tides. Since 2011, 2,910 acres have been returned to the bay, about 39 percent of this goal. But restoration leaders are gunning for another vision, “90/10,” wherein all but 10 percent of the salt ponds become marsh. The outcome will depend on scientific feedback — the kind of data Ackerman and Robinson-Nilsen are collecting — and, of course, on funding.

For the gulls, the breaching of A6 was an ecological disturbance on the order of the Mono Lake land bridge. For other waterbirds that have adopted the salt ponds as a surrogate for lost wetlands, the restoration — without vigilant management — could loosely resemble the disappearance of Mono’s wetlands, which supported millions of birds. These events epitomize the changing times: The first of insatiable thirst, without any regard for ecology; the second of an awakened environmental consciousness, with tough choices to make. Going with 90/10 would likely end the stay of snowies in the Bay Area, says Strong, failing an official restoration goal: to “maintain current migratory bird species.” Thus there are “marshistas and pondistas,” Strong explains.

The arguments for more marsh are compelling, however, in terms of water quality and flood control over the long term, and from yet another avian perspective. The California clapper rail might benefit most from the 90/10 scenario. Shy, secretive and about ankle-height, it’s arguably the Bay’s highest-profile endemic creature, a subspecies listed as fed-

erally endangered in 1970. Its numbers climbed from a low of about 500 to a peak estimate of 1,400 in 2006. Invasive red fox control helped, and so did the spread of an East Coast cordgrass.

The U.S. Army Corps of Engineers first planted *Spartina alterniflora* in the ’70s to stabilize Alameda flood-control channels. It hybridized with native cordgrass and infiltrated the lower marsh, where it grows so densely it shades out other flora. While native cordgrass sticks to channel edges on the Bay’s upper marsh, the super-vigorous mongrel chokes waterways and flood-control channels. The invasive spreads across the mudflats, reducing the foraging grounds of many waterbirds, including the clapper rail. However, the birds used it for nesting and cover from predators.

Beginning in 2005, the San Francisco Estuary Invasive *Spartina* Project began using helicopters, hovercraft and spray-packs to make coordinated herbicide attacks. Once the grass is eradicated, native vegetation recolonizes quickly. But much as A6’s breaching spelled change for gulls and plovers, there were unintended consequences: Over the next five years, the already slim rail population declined by about 15 percent.

Cory Overton, another USGS wildlife biologist, has been slipping through the marsh since 2007, tracking these solitary birds. They’re highly territorial, he says, so their population is tied “one-to-one” to available habitat. Each bird defends about five acres. (A major league baseball field is about three.) “You can’t necessarily cram more birds into smaller areas,” says Overton. “The best bang for your buck is new marsh.”

Contrast that with semi-colonial plovers, where you might find a nest scrape or two every few acres. “Because plover ecology and behavior is so different, you can

probably do more with less land,” Overton suggests, especially if you keep out predators — and keep humans at a distance, on trails. Potentially, you can also make new habitat, just like the retired salt ponds. “But you just can’t make a tidal marsh where it hasn’t been before,” says Overton. “It has to be at the right elevation, with the right wave action. We can do a lot of things, but we haven’t figured out how to control the tides.”

We can, however, provide clappers with a temporary place to escape to during the highest tides, when they can be exposed and easily picked off. Between the Oakland Airport and the A’s Stadium, in a tract called Arrowhead Marsh, Overton’s group has anchored a fleet of “floating islands”: platforms with small tents made of woven-palm fronds. Clapper cams have shown they’re much appreciated.

Still, says Overton, “Everybody prefers a natural alternative to an artificial one.” That means more genuine marsh. “The San Francisco Bay is one of the most invaded ecosystems on the planet,” he observes. That’s no exaggeration — the estuary was described as North America’s most invaded aquatic ecosystem in a 1995 report for the Fish and Wildlife Service, primarily because so many foreign bilges have come to port and released their ballast water. What’s changed? “From mussels and clams and tube worms that live in the bottom, to the fish that are swimming through the sloughs, to the plants,” says Overton. “You can’t make the bay a pristine natural system,” he admits. “But you can make it a functioning tidal marsh. That’s still restoration.”

THE STUFF OF FLOATING ISLANDS — of ingenuity and determination — might make the difference for plovers, too. Whatever amount of pond habitat remains will need to be enhanced. Across

Panorama of Salt Pond A6, taken in 2010 before the area was breached as part of the South Bay Salt Pond Restoration Project. Today, the area has accumulated sediment and looks like a natural mudflat. The image was created by stitching together 12 wide-angle frames taken by a camera at 150 feet, suspended from a kite, and is part of the Hidden Ecologies Project, <http://bit.ly/NYMgAq>. CRIS BENTON



A pair of avocets chase a California gull that had snatched their baby from a nest at Don Edwards S. F. Bay National Wildlife Refuge. KEN PHENICIE JR.

WEB EXTRA

If you enjoyed this bird story, check out Nick Neely's online-only feature, "On the prowl with Oregon's pygmy owls," at <http://hcne.ws/QsSbzA>.



Nick Neely is a Bay Area native, or perhaps invasive. After receiving a master's in literature and environment from the University of Nevada, Reno, he interned at HCN in 2010, and now lives (temporarily) in New York City. He sends his sincere apologies to the salt marsh harvest mouse, for devoting all of his words to the birds.

the Bay, for instance, is an experimental plot — "the bird laboratory" — in pond SF2, nested in the R complex beside the Dumbarton Bridge: 30 giant islands for nesting and high-tide refuge. SF2's archipelago was constructed for \$9 million in 2010 as part of the restoration's first phase, and what happens there will inform future projects. "At low tide, a lot of mud flat is exposed," says Strong — providing forage for shorebirds. "And there are deep areas for dabbling ducks." In 2011, 154 avocet nests and five snowy plover nests were counted on the islands — a real success. Then again, if you concentrate waterbirds, predators might notice. SF2 is far from the gulls' home range, but for similar projects nearer Alviso, says Ackerman, "all that effort essentially could be devastated if California gulls go in and depredate."

In general, the restoration project is trying to do more with less, and that, too, could buoy the plover. "They have been here for almost a hundred years now," says Robinson-Nilsen, and with little human presence, "this is one pocket where we can do something pretty easily to help them survive." The bird observatory has tried to help the birds by enlisting volunteers to leave footprints — plovers nest in incongruities — and sprinkling white shells across dry pond bottoms for camouflage. But they're still searching for effective, low-budget ways to improve plover habitat.

Ultimately, significant acreage will need to be left for snowies if they're to hang on, says Robinson-Nilsen, and those ponds will need to be meticulously managed, drawing down water in late

February, while ensuring ditches stay full all summer for wet pecking grounds. The restoration plans to provide nine dedicated plover ponds. SF2 includes one such "nursery," which incubated 13 nests in 2011. But this winter, pond E8a — where 60 nests were found in 2011 — was breached and flooded; though it could be a natural fluctuation, 81 fewer nest scrapes were found in the South Bay this year.

The restoration is designed to proceed cautiously, as part of its adaptive management philosophy. Its plan outlines "triggers" for individual species, red flags that would compel the project to pause, reassess — or halt altogether, even short of 50/50. Snowy plovers would pull their trigger by dipping below the 99 birds counted in 2006 before restoration commenced, or by declining in number for several years. "But we can't guarantee species will use the habitat we create and enhance," says John Bourgeois, the project's executive manager. "Birds do unpredictable things." This year, no plovers were seen on SF2's pricey islands.

The official Bay Area recovery goal is 500 breeding plovers, and 3,000 for the entire coast. Robinson-Nilsen thinks anything more than 250 is a stretch, though, even under the 50/50 scenario. "Where are the other 250 going to go? There's almost no habitat anywhere else. Partially it's that this target did not take into account the restoration — the fact that their habitat is going to be cut in half in the next 10 years."

WE SAT IN THE TRUCK for another hour, keeping the roused gulls off the levee

between A22 and A23. There were just 23 gulls when we arrived this time, and the bird observatory was going to scale back hazing. "One day, they definitely kept me on my toes," Robinson-Nilsen remembered. "I was so glad that this area is closed to the public because I'm sure I looked crazy." Hundreds of the rascals circled and settled behind the Explorer, again and again. An interspecies game of chase ensued. Now, the wind rocked the truck, whistled around its mirrors. "Last night," Robinson-Nilsen told me, "I had a dream that we found two gull nests on this levee." The nightmare jolted her awake. "But that's not true yet. Hopefully, it won't be."

Her premonition hasn't transpired. Twelve thousand of A6's evicted gulls conveniently nested in the adjacent A14 colony last year, while others were absorbed safely elsewhere. And oddly, only 38,000 nested in total. For whatever reason, many apparently didn't attempt to breed.

This year, the breeding gull count is 52,700, a new record. But the gulls didn't even show up at the levee I helped defend. Instead, they tried to seize several of SF2's new islands, which, says Robinson-Nilsen, "is the last thing we wanted." So the bird observatory resumed its patrol by kayak — a little bit more challenging, especially since Robinson-Nilsen is currently pregnant. Every day for three weeks, she paddled out, blowing her whistle sharply. The birds flew to a neighboring islet. She gave chase, no doubt looking crazy.

Movement, you might say, is the estuary's only surety. After all, the Bay didn't exist until about 10,000 years ago, when the ocean first slid through the Golden Gate after the last ice age. The marshes didn't settle until 3,000 years ago, when the sea level steadied. Before the salt ponds, there were no snowy plovers, fewer waterbirds; before the landfills, and perhaps the Mono land bridge, no California gulls to harass them. Only recently have we begun to influence these tides, let alone become aware we were doing so. Yet now we help decide which species go where, or even which survive.

On the levee last year, I asked Robinson-Nilsen if she ever felt a sense of loss about what was once here, before we filled it in and blocked it out. "It's amazing to think about this landscape before all this development," she replied. "Wetlands stretching as far as the eye could see. But still, there's so much wildlife here — it's just different wildlife." □

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Workers install a pipeline that will bring Missouri River water to Watford City and surrounding communities. The Western Area Water Supply Authority estimates that water sales to the oil industry will cover 80 percent of the cost of the project.

COURTESY WESTERN AREA WATER SUPPLY AUTHORITY

Bakken, continued from page 7

conservation requirements for drillers and other industries.

While North Dakota has produced oil since the '50s, this boom's water use is unprecedented and cuts to an ongoing concern. Delegates writing the State Constitution in 1889 enshrined water as a public resource, held in trust by the state. But anyone with physical access to an aquifer or surface water can apply to the Water Commission for a withdrawal permit. (You don't need a permit for most domestic or livestock use.) Other than a few hundred dollars in fees, the water is free.

Between 1980 and 2007, when the current oil boom started, the state issued just 10 permits for water depots. It's awarded at least six times as many since then. The process isn't onerous so long as the new use won't "unduly" affect existing permits, which have priority. The commission has even urged farmers to temporarily convert irrigation permits to help drillers; nearly two dozen have done so. For the most part, oil companies here have not begun reusing wastewater, nor have regulators pushed them to. With the Missouri River bisecting the oil fields, the prevailing view is that nothing, least of all water, should slow drilling. That some individuals have reaped millions selling this water is simply a bonus.

Few have done as well as Mike Ames, who says he's had a hand in about two-thirds of the 70-plus depots. Ames, a burly man with a broad nose, grew up across the border in Montana and began selling irrigation equipment in Williston, northwest North Dakota's largest town, in the 1980s. Seven years ago, Ames opened his first depot, selling water for 35 cents a barrel — equal to 42 gallons — to farmers for mixing with pesticides. Then came oil. "I was in the right place at the right time," he says. Today, he charges 60 cents a barrel. He's also hired 20 people in the past year to look after the dozen depots he runs — he owns three and operates the rest for other farmers.

He says he and the other water providers are helping wean the country off imported oil; thanks in part to the Bakken, U.S. oil production is rising consistently for the first time in over 25 years.

But private sellers face growing competition. Oil and oil-field services companies are applying for their own permits as they settle into the state. One Texas-based company, Select Energy, acquired permits to draw nearly 6 billion gallons annually from Lake Sakakawea, a giant reservoir on the Missouri.

The other new competitor is public. Because quality drinking water is scarce in western North Dakota, the state has worked for decades to build pipelines to deliver river water to residents. A system in the southwest, begun in 1977, still isn't complete; projects in the northwest have not materialized. Pushed to the limits of their existing water supplies by oil-driven population growth, the area's towns recently established the Western Area Water Supply Authority to build their own project. To lower the construction time to just a few years, they're borrowing \$110 million from the state — and plan to ask for another \$40 million — to be paid back by selling water to oil companies. They already have four depots running, with plans for eight more.

From the air, the need for water-supply projects is clear. Amid the prairie hills, new developments sprawl everywhere: water depots and drilling rigs like playing pieces in an elaborate game, a yard full of drill pipe here, a field full of campers there, new motels.

In Watford City, the largest town in McKenzie County, the population leapt from 1,744 in 2010 to an estimated 6,500 today, and city officials are planning for 15,000 over the next decade. Just behind Water Supply Authority Executive Director Jaret Wirtz's office, a local trucking company has cut several acres out of the surrounding prairie to build housing for 1,000 people. "Everybody wants to do 500 homes here, 300 homes there," Wirtz says. "Well, those all take water."

The drillers may soon be able to

get more water from Lake Sakakawea, relieving some stress on groundwater. The Army Corps of Engineers opened the lake to oil-field use this spring after determining there would be little environmental effect, though it could be a year before planned projects are complete. In written comments, the Environmental Protection Agency said the Corps presented limited evidence to support its conclusion, failed to examine the impacts of withdrawals on downstream areas and as a result, "may not fully recognize potential direct, indirect, or cumulative impacts."

The Missouri River — the country's longest — supplies drinking water to 3 million people, irrigates 550,000 acres and cools 25 power plants. The utilities want more water released from dams for increased power production. Downstream states want more for barge traffic. Meanwhile, back in the oil fields, one utility has begun building two 45-megawatt natural gas plants that will require up to 75 gallons per minute. Fargo, North Dakota's biggest city, is still pushing for completion of a Sisyphean engineering feat begun in the 1950s to reroute water from the Missouri across the state to supplement its water supply. "Eventually, that river is going to get tied up," Wirtz says.

Lee and LaShell Tjelde live near the Montana border, where the land begins to undulate, exposing bare hillsides of striped earth. Lee is tall and strong, with a red face and wire-rimmed glasses. His family has ranched here for three generations.

On a drive through the couple's pastures, he points out stock dams nearly dry in mid-May. When they run out, Tjelde pumps groundwater for his cattle. He holds one permit to irrigate from the same groundwater, and he applied for a second nearly two years ago. Such requests once took months to process, but since drilling began, the Water Commission has been overwhelmed. The aquifer here is among those showing signs of stress, and hydrologist Alan Wanek says he will be cautious about issuing new permits. Even as the Tjeldes and several neighbors wait, five other neighbors have temporarily converted existing irrigation permits to sell to the drillers. "To my eyes," Tjelde says, "that's just not right."

Water is already hard to find. When the Tjeldes built their home, they drilled fruitlessly and eventually resorted to a "water witch," who divined a narrow seam of water in the ground. The well only pumps about four gallons per minute, and it's too salty for the garden. So LaShell collects rainwater in two 500-gallon barrels, one of which is nearly empty. Some neighbors must haul water from town. "If these aquifers are dried up through industrial use, what's left for us?" Lee says. "This is our life out here." □



NICHOLAS KUSNETZ

WEB EXTRA
Nicholas Kusnetz rides along with a water truck driver. Watch and listen to the audio slide show at hcn.org.

Practical pyromania

Ben Rogers' engaging first novel, *The Flamer*, is the coming-of-age story of a young Nevada pyromaniac named Oby Brooks. Oby discovers his love for conflagrations when his father donates the family's dilapidated house to the Reno Fire Department to burn "for training purposes." The boy watches the fire, riveted: "A dragon was eating my house and I couldn't tear my eyes away."

The trajectory of Oby's life becomes even clearer once he steals some pure sodium from Mr. Weisgard, a scientist visiting his class. He smuggles it home, where it ignites his fireworks-packed closet. "That closet of yours," his dad fumes during the chaos, "it's like a munitions locker."

But there's no evil intent behind Oby's obsession — he just likes to blow stuff

up. Weisgard sentences Oby to kitchen duty while he tutors him in chemistry; Oby even wins several Boy Scout merit badges. As the boy's probation ends, Mr. Weisgard encourages him to nurture his interest in science and explosions. "Nevada's full of things that need blowing up," Mr. Weisgard observes, and helps Oby find a summer internship at a quarry. The author's talent for humor and characterization reach their height in the novel's quarry section, where a whole cast of colorful yet believable characters welcome Oby and initiate him into the secrets of their peculiar world.

Oby embodies the spirit of Nevada, given the state's tendency to ignite in spectacular forest fires, weapons tests and mining quarry blasts. And he has a strong, defiant affection for his home:

"The prospect of ever moving away from Reno hit me like a body punch. ... Maybe I was a high-altitude recipe. I might not rise anywhere else. Too much pressure."

Rogers writes with crisp precision about subjects as varied as science, the complex matters of the heart, and the Great Basin landscape. "The hills around Reno yellowed. The air turned hot and dry. Afternoon thunderstorms sent more lightning to the ground than rain. Brushfires flared up, blackening mountainsides. Atoms that had been sagebrush and pine trees were reincarnated as smoke."

The Flamer is a highly original and delightful debut by a writer who captures the quirks of this region with genuine love but without sentimental pieties.

BY JENNY SHANK



The Flamer
Ben Rogers
257 pages,
softcover: \$14.
Aqueous Books, 2012.



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A mother polar bear plays with two cubs (far left) near their den, in the Arctic National Wildlife Refuge, March 2002. Brant and snow geese dot the muddy waters of the Teshekpuk Lake wetland, July 2006 (left).

SUBHANKAR BANERJEE
IMAGES COURTESY SEVEN
STORIES PRESS

We cannot drill our way out of this mess

In 2001, on the U.S. Senate floor, one of Alaska's pro-development politicians held up a blank white piece of posterboard. "This is a picture of ANWR (the Arctic National Wildlife Refuge) as it exists for about nine months of the year," he said, trying to persuade fellow senators to open that protected area to drilling. The sublime winter scenes that appeared in engineer-turned-photographer Subhankar Banerjee's *Seasons of Life and Land* (2003) — which a Democrat in turn displayed in a later Senate session — showed that there was a lot more to the Arctic landscape than just empty white space. The threat to the refuge's wealth of wildlife and habitat was averted, but only temporarily; conservationists knew that the battle wasn't over.

Now, Alaska Congressman Don

Young is making his 11th attempt to open the refuge to oil and gas development. Leases have already been sold farther west, in the Chukchi Sea and the National Petroleum Reserve, and in the Beaufort Sea to the north. Meanwhile, Alaska Gov. Sean Parnell is pushing road construction in undeveloped areas, while the nations of the Northern Hemisphere squabble over shipping routes suddenly opened up by the changing climate.

Just in time, then, comes Banerjee's latest volume, *Arctic Voices*, a wakeup call from 39 artists, writers, biologists, Alaska Natives and activists. As in *Arctic Refuge: A Circle of Testimony* (a 2001 book edited by Hank Lentfer and Carolyn Servid), the eyewitness accounts and reports in *Arctic Voices* question the wisdom of relying on fossil fuel fixes, urging

restraint in our approach to the nation's last great wilderness area.

The Arctic is the planet's ecological tipping point: The polar regions not only suffer greater warming than lower latitudes, but the rapid loss of sea ice and permafrost there is accelerating the process to where it could spiral out of control, beyond even the direst predictions. *Arctic Voices* also touches upon Iceland, Greenland and Siberia, driving home the point of global connectedness. "Climate scientists have made it clear," writes Ricki Ott, a toxicologist and fisherwoman who witnessed the *Exxon Valdez* spill, "that if people wish to have a livable planet for their children, the Oil Age must end soon, regardless of how much oil is left to extract."

BY MICHAEL ENGELHARD



Arctic Voices: Resistance at the Tipping Point
Subhankar Banerjee, editor.
560 pages,
hardcover: \$35.95.
Seven Stories Press,
2012.



Balloons on the moon

Here in the western Great Basin, the high desert is rough and remote. This topography tends to keep out the common detritus of the dominant endemic species, *Hillbillicus Nevadensis* (var. *Redneckii*). So while the dusty BLM roads in the sage-filled valley bottoms are beribboned with spent shell casings, Coors Light bottles and empty cans of chew, it's much harder to litter the high country. Except, that is, by air. I've picked up so many trashed balloons over the years that I find myself wondering what in hell is so jolly about California, the upwind place from which this aerial trash originates. But maybe the prevalence of balloons in the otherwise litter-free high desert shouldn't surprise me, since millions of them are released in the U.S. each year. We release balloons at graduation celebrations, birthday parties, even funerals. A company called Eternal Ascent will, for \$1,500, balloon-lift your ashes away. Aerial pet ash disposal is only \$600, though, so if I go this route, I'll advise my family to say I was a St. Bernard.

The moment a balloon is released it becomes trash — trash that can cover serious ground. A 16-inch, helium-filled latex balloon can cover hundreds of miles and float for up to 36 hours while climbing to an altitude of 25,000 feet, where it freezes, explodes, and rains down to earth as garbage, which some desert rat like me then has to tote away. And while latex balloons eventually biodegrade, metalized nylon balloons don't, instead becoming permanent features of the natural environment. Because they conduct electricity, they also cause hundreds of blackouts each year by short-circuiting power lines, hinting at the vulnerability of the grid. If "Cactus Ed" Abbey were alive today, he might enjoy the idea that the elaborate infrastructure of post-industrial capitalism can be brought down by a single, drifting, metalized Mickey Mouse.

By now, you may be wondering what kind of dark-souled curmudgeon goes out of his way to profess such loathing for balloons. Truth is, I'm taking this principled stand against balloons partly because I'd otherwise have to stand against something much scarier, like corporate greed or global climate change. But there is one use of balloons that I whole-heartedly approve of: Making lawn chairs fly.

As the story goes, on July 2, 1982, in a suburban Southern California backyard, "Lawnchair Larry" Walters tied 42 large, helium-filled balloons to his aluminum lawn chair, dubbed Inspiration I. He loaded it with the provisions needed by Western

heroes: sandwiches, beer and a gun. But Larry miscalculated, and after his friends cut the cord that tethered him to land, he disappeared in a meteoric rise of 1,000 feet per minute. He ended up at 16,000 feet in LAX airspace, where a TWA pilot radioed to air traffic control that he had just seen a gun-toting guy in a lawn chair sail by. Larry eventually managed to shoot a few balloons and descended into a Long Beach

neighborhood, where he became entangled in power lines and caused a 20-minute blackout. Unharmed, he climbed down from his lawn chair and was immediately arrested. When a reporter asked him why he'd done it, Larry replied, "A man can't just sit around."

Larry's heroism notwithstanding, the fact remains that unless you want to fly in a lawn chair or take down the power grid, balloons *are* trash. But the problem with being both an environmentalist and a father is that it's frighteningly easy to expose oneself as a hypocrite. In this case, the trouble started when our 5-year-old daughter, Caroline, insisted we celebrate her sister Hannah's 9th birthday with a balloon release. That meant I had to choose between being an uptight, sanctimonious, balloon-reviling ecogeek, and a really cool Dad who externalized the cost of his coolness by sending aerial trash downwind to Utah. I hesitated, until Caroline explained that our balloons would not go to Utah but rather to the moon, where she intended to clean them up herself, as soon as she becomes an astronaut.

Well, that's pretty persuasive, so we immediately began preparations for our birthday launch. We would use biodegradable latex balloons, release only one per kid, and be careful to aim them at the moon. We also decided that, just in case the balloons ended up in the Wasatch Mountains instead of the lunar mountains, we'd write something witty on them to compensate the finders for their trouble. On one, we wrote "PLEASE RETURN TO LARRY WALTERS." On the other, "SORRY, UTAH." Then I counted down, the girls aimed for the moon, and at "Blast off!" they opened their small hands and sent the yellow and orange balloons off into the azure Nevada sky.

The balloons rose, the girls cheered, the moon waited. It was one of those sparkling experiences when time, worry, even the incessant desert wind — everything except the balloons — stood still for one long, gorgeous moment.

I try to rationalize that because I've retrieved scores of trashed balloons from the desert, I've earned the right to release a few, but I know that's more of the same evasive horseshit we tell ourselves every day. The plain fact is that I littered, and had fun doing it. I hope folks in Utah will cut me some slack on this one. After all, a man can't just sit around. □



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MICHAEL BRANCH (2)



"Lawnchair Larry" Walters, ready for takeoff in San Pedro, California, in July 1982.

AP PHOTO/SAN PEDRO NEWS PILOT

WEB EXTRA

Michael Branch performs his essays out loud in our monthly podcast of "Rants from the Hill." Tune in and subscribe for free at hcn.org/podcasts.





In my wallet is a tattered Fat Tire label which I've had for 11 years. Ever since my first one, I immediately fell in love with this refreshing ale and the company's eco-conscience ways. Amongst friends, this label has led to many discussions such as,

"Is it possible to jump a recycling bin on a banana seat bike?"

(Yes, but next time don't pedal so fast!) Thanks Fat Tire for making recycling and biking so much fun.

Frances M. of South Carolina

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A lot of people have discovered the tasty joy bottled and canned in Fat Tire Amber Ale. Join them on newbelgium.com and enjoy the ride!



HEARD AROUND THE WEST | BY BETSY MARSTON

THE WEST

It was such a sweet story at first: A man in a hairy white goat suit with fake horns who appeared to be trying to join a mountain goat herd in the Wasatch Mountains some 40 miles north of Salt Lake City. Yes, the faux goat was clumsy, not being a real caprid with fabulous grippy, gravity-defying, cloven hooves, but there he was, clambering over rocks on a steep slope, hoping — perhaps unwisely — to be accepted by animals renowned for their sinuous grace and wise faces. Or so some of us assumed. Philip Douglass of the Utah Division of Wildlife Resources was even worried that “goat man,” as the press called him, might be shot and turned into an unusual trophy when hunting season for the animals began in September. Alas, the mystery ended when goat man revealed himself to be a 57-year-old archery hunter from Southern California. No, he didn’t want to be one with the mountain goats, he told *The Associated Press*, he just wanted to practice getting as close as possible to a herd in order to kill one of them. So all that laborious four-legged climbing while wearing his homemade goat suit was merely preparation for a mountain goat hunt in Canada next year. The man, who was not identified, was apparently not happy about all the publicity, which began when a hiker spotted him on a mountainside and a TV news crew photographed him from a helicopter. And we suspect that he was the anonymous “agitated man” who called wildlife authorities to say: “Leave goat man alone. He’s done nothing wrong.”

Meanwhile, up in Washington, the Olympic National Forest has had to close a trail for two weeks because the mountain goats there have been getting testy with tourists. Forest officials told the *Spokane Spokesman-Review* that “aggressive goats” on the Mount Ellinor Trail near Hoodspport had caused several hikers to feel threatened. Violating the closure order is a big deal; the maximum penalty is a \$5,000 fine and six months in jail. But the caution is understandable; just two years ago, in nearby Olympic National Park, a mountain goat defended its spot on a hiking trail by butting and killing a man, whose family is now suing the Park Service.



UTAH
Is it too late to back up?
LILLIAN HOUGHTON

COLORADO

As if the recent local wildfires weren’t trouble enough, now Woodland Park, Colo., has to worry about a “strong, aggressive” 6-foot monitor lizard that might find itself tempted to dine on cats and dogs. The “pet,” known as Dino, snapped its mesh leash and wandered off in the tourist town northwest of Colorado Springs, reports AP. **“If it gets hungry enough, we don’t know what it will do,”** Teller County Sheriff Mike Ensminger remarked helpfully.

Speaking of fires, in a letter to the *Colorado Springs Independent*, Terri Weber had a heartfelt reminder for area residents who’d weathered a terrible wildfire that destroyed hundreds of homes: “Local resources were not enough to save our city. You, my fellow taxpayers, paid for the C-130s dropping fire retardant, (the) Hot Shots ... (and) boots on the ground. This is the big government that some people are wailing about. I am so tickled to have it, and I thank you for it.”

MONTANA

Jesus has a friend in Republican Rep. Denny Rehberg, or at least the blue-robed Big Mountain Jesus statue does, standing with arms outstretched at the top of Whitefish Mountain Resort’s Chair 2. For nearly six decades, the

statue has welcomed skiers, “whose irreverence, however unintentional, most recently cost the Jesus statue an outstretched hand,” reports the *Missoulian*. But that’s the least of its problems. First, the Forest Service chose not to renew the lease for the 25-by-25-foot parcel of land where the statue stands. But after 95,000 public comments flooded in, the agency decided to let the statue stay “after determining that it was eligible for listing in the National Register of Historic Places.” That’s when a Wisconsin-based group of atheists called the Freedom From Religion Foundation went to federal court to attack the legality of allowing a religious symbol on national forest land, calling it “a state endorsement of religion.” Rehberg, who is running for the Senate in a closely watched race against incumbent Democratic Sen. Jon Tester, has joined forces with those who want the Jesus statue to stay put. He believes the statue is a “historic monument” inspired by members of the Army’s 10th Mountain Division, who had seen similar shrines in the mountains of Italy.

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

Tips and photos of Western oddities are appreciated and often shared in this column. Write betsym@hcn.org.



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“First to go were the young Italian prune trees. His more established pear trees were next. Now, his **decades-old grape vines are dropping their fruit and clinging to their lives.** The 30-year-old asparagus patch is toast. ... Even the weeds are dead.”

Ari LeVaux, in his essay “Megadrought, the new normal,” from *Writers on the Range*, www.hcn.org/wotr