HCN'S SPECIAL ISSUE ON THE FUTURE

High Country News

For people who care about the West

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High Country News

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editor@hcn.org
circulation@hcn.org
development@hcn.org
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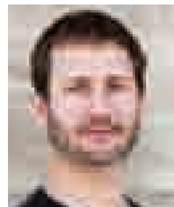
EDITOR'S NOTE

More questions than answers



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—Brian Calvert, associate editor

What Are We Thinking?

PR SPRINGS, UTAH. TAR SANDS RESISTANCE

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From politicians to climate scientists, meet 10 people under 30 who are shaping the region's future.
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SPENCER MASTERSON, COURTESY FEAST

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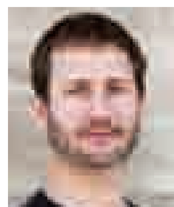

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Illustration by Eric Baker.

JOIN THE CONVERSATION

"Whoa, cowpokes: Let's back up a little and look at the big picture. Given the fact that the current 'native' habitat of this species was fully glaciated and uninhabitable back at the end of the Pleistocene, we can be damn near certain that these guys once were native in the La Sals."

–Chris Rosamond, commenting via Facebook on Krista Langlois' story "Non-native goats in Utah's La Sal Mountains: How bad are these ungulates for the ecosystem?" hcne.ws/1zPm29S

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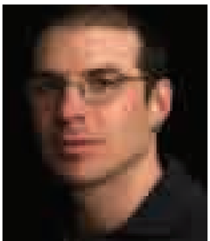
CONTRIBUTORS

AMOS

Amy Mathews Amos has spent her career at the interface of environmental science and public policy as an analyst and consultant. She writes about conservation, wildlife and health from her home in Shepherdstown, West Virginia. @AmyMatAm.



BACIGALUPI

Paolo Bacigalupi, author of *The Windup Girl*, has won the Hugo, Nebula and Michael L. Printz awards and was a finalist for the National Book Award. *The Water Knife*, a political thriller about a water war between Las Vegas and Phoenix, will be published by Knopf in May. @paolobacigalupi

Cally Carswell is a *High Country News* contributing editor and freelance science and environmental journalist based in Santa Fe, New Mexico. Her work has recently appeared in *Science* and *Modern Farmer*. @callycarswell

CARSWELL

Sarah Gilman is a deeply ambivalent hydrocarbon addict, freelance writer and *High Country News* contributing editor now based in Portland, Oregon. She served as the magazine's associate editor for six years. @sarah_gilman

Ben Goldfarb is a Seattle-based correspondent for *High Country News*. His writing has appeared in *Scientific American, Pacific Standard, Earth Island Journal* and *Modern Farmer*. @ben_a_goldfarb

GILMAN

Benjamin Hale is associate professor in the Philosophy Department and the Environmental Studies Program at the University of Colorado, Boulder. His essays have appeared in *The New York Times* and *Slate*. @BenjaminHale3

Alex Carr Johnson is a freelance journalist living in western Colorado. @carr_johnson.

MORTON

Michael McLane is an editor for *saltfront: studies in human habit(at)* and *Sugar House Review.* His work has appeared in *Colorado Review, Interim, Western Humanities Review* and *The Dark Mountain Project.*

Timothy Morton is Rita Shea Guffey Chair in English at Rice University in Houston. He is the author of *Realist Magic: Objects, Ontology, Causality* and *Hyperobjects: Philosophy and Ecology after the End Of The World*. He is currently working on a writing project with Icelandic singer-songwriter Björk.

NIJHUIS

Michelle Nijhuis is a longtime contributing editor at *HCN*. After 15 years off the electrical grid in Paonia, Colorado, she now lives and writes in White Salmon, Washington. @nijhuism; michellenijhuis.com.

Nathaniel Kennon Perkins lives and works in Salt Lake City. His creative work has appeared in *Triquarterly*, *Decomp*, *Pithead Chapel* and other publications.

PERKINS

Adam Sowards is an environmental historian at the University of Idaho. He is the author of several books and essays, including *The Environmental Justice: William O. Douglas and American Conservation* and the editor of *Idaho's Place: A New History of the Gem State*. @AdamMSowards.

DEFINED
Ecocentrism A theory of environmental ethics that extends moral considerations to entire ecosystems — not just humans or animals.

Where's Aldo?

The case for voluntary decency

BY MICHELLE NIJHUIS

"Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

—Aldo Leopold, "The Land Ethic"

In 1948, Aldo Leopold suffered a fatal heart attack while helping fight a fire on his neighbor's farm. The next year, thanks to the determined efforts of family and friends, Oxford University Press published a collection of his essays called *A Sand County Almanac*. In the decades since, it has become an environmental classic, and "The Land Ethic," one of its final essays, has woven itself so tightly into the language of American conservation that it's often quoted unconsciously, without attribution. Like the apocryphal playgoer who complains that *Hamlet* is full of clichés, first-time readers of "The Land Ethic" are sometimes surprised by its familiarity: So *that's* where that line comes from!

The endurance of Leopold's essay is at least partly explained by its eloquence. Plainspoken but poetic, dense in the best of ways, it has a practical Midwestern beauty that serves it well. It is complex yet eminently quotable, even in 140-character chunks. But it's also more than 60 years old. Today, decades after it was written, the Western landscape faces forces almost too big to understand: urbanization, global energy demand, the compound effects of climate change on water and wildfire. Is Leopold's land ethic big enough to take them on?

"THE LAND ETHIC" WAS THE CULMINATION of decades of thinking about conservation and, more broadly, about the relationship of people and nature. Leopold, a lifelong hunter and trained forester, recognized — and cherished — the practical benefits of nature. He accepted that people lived inside ecosystems, not apart from them. But he had also lived through the Dust Bowl and the Great Depression, and seen the topsoil of southwestern Wisconsin, unmoored by drought and the profit motive, blow away and slip toward the sea. He understood, from bitter experience, how humans could fail nature. How, he wondered, could we do better by it?

"There must be some force behind conservation," Leopold mused in lecture notes from the 1940s. "More universal than profit, less awkward than government, less ephemeral than sport, something that reaches into all times and places. ... I can see only one such force: a respect for land as an organism; a voluntary decency in land-use exercised by every citizen and every land-owner out of a sense of love for and obligation to that great biota we call America."

Voluntary decency. That polite phrase doesn't appear in "The Land Ethic," but the essay is an argument for its necessity — and for its potential to power change at even the greatest scale. "A system of conservation based solely on economic self-interest is hopelessly lopsided," Leopold wrote. "It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. ... An ethical obligation on the part of the private owner is the only visible remedy for these situations."

Leopold thought that if Wisconsin farmers had a stronger sense of voluntary decency, they would have used the soil-conservation funds allocated by the state in the late 1930s for more than just immediately profitable measures. They would have improved their farming practices until their livelihoods, their neighbors' livelihoods, and the topsoil itself were protected for the long term. Many of us routinely accept such "obligations over and above self-interest" as members of the human community, Leopold observed. We fund schools not attended by our immediate family; we pay for roads not traveled. A land ethic, he argued, would simply extend that sense of obligation beyond people to the land itself — to what he called the entire "biotic community."

Leopold wrote most of "The Land Ethic" in a shored-up chicken coop on a desperately overworked piece of farmland on the Wisconsin River. The place he and his family called "the Shack" was, like "The Land Ethic" and many of his other writings, a product of the Great Depression and the Dust Bowl, the paramount ecological challenges of the day. After the Leopolds bought the land in 1935, they spent years struggling to revive it, planting hundreds of trees only to watch them be killed by drought. Eventually, they restored a patchwork of pines, hardwoods and prairie that survives today.

Leopold's response to the disasters of the 1930s was characteristic of his times. Char Miller, an environmental historian at California's Pomona College, points out that many of Leopold's contemporaries — composer Aaron Copland, filmmaker Pare Lorentz, anthropologist Margaret Mead — also sang the praises of simpler, close-to-the-ground living. But for Leopold, at least, going "back to the land" wasn't a retreat from the world's problems; it was an attempt to start solving them.

We, too, live in a time when ecological disaster seems very close and very real. It's tempting, perhaps even more now than then, to hide out in the metaphorical chicken coop. But Leopold's ethic is still working, covertly and overtly, against that urge. Leopold biographer Curt Meine, in the 2011 documentary *Green Fire*, finds the land ethic expressed in suburban prairie fragments, urban habitat-restoration projects, and similar efforts that aim to connect people with the nature of nearby places. Such connections, he says, foster the sort of voluntary decency Leopold described: a respect for nature, even in its most humble, altered and unlovely

Aldo Leopold with Flick, c. 1944. In lecture notes, Leopold wrote of "voluntary decency" as an essential element of conservation.
COURTESY THE ALDO LEOPOLD FOUNDATION, ALDOLEOPOLD.ORG

states, an awareness of one's place as a "plain member and citizen" of it, and a willingness to sacrifice time, money and effort on behalf of its lasting health.

LEOPOLD KNEW THAT NATURE never had, and never would, exist in splendid isolation. While he spoke eloquently against a conservation strategy based on economic self-interest, he also distrusted purely preservationist arguments such as those advanced by Sierra Club founder John Muir. To Leopold, successful conservation required human connection to the land, and connection required use — respectful use, yes, and use for spiritual and aesthetic as well as economic benefits, but deliberate, active use. Even wilderness, he submitted, was a form of land use, perhaps the highest form of it. That seeming paradox is more relevant today than ever: We know, with greater and greater certainty, that it's impossible to put nature in quarantine — and equally impossible to survive without it.

"I think climate change, and the disruptions it's bringing to biological life, makes a preservationist impulse problematic," Miller says. "A conservation ethos that allows us to repair the dilemmas we've created is going to be much more useful in the coming century." Though that repair work requires us to muster yet more voluntary decency, it can create the connections that foster it, too.

When Leopold wrote "The Land Ethic," he was at the top of his field, revered for his pioneering work in forestry and wildlife science. He was also in poor health, suffering from a painful facial tic that resisted treatment. It's easy to see his most famous essay as the product of that confident mind and failing body: Despite Leopold's ambitious scope, he is careful to emphasize that his is far from the last word. "Nothing so important as an ethic is ever 'written,' " he concludes. Ethics evolve "in the minds of a thinking community," he believed, and do so slowly, amid more immediate obligations. ("Breakfast comes before ethics," he once told his daughter, Nina.)

Our challenge, then, is to continue — or better, accelerate — the evolution of the land ethic and the ideas that underpin it. Three generations after Leopold, we're even more distracted than the people of his time, and our environmental problems are in many ways vastly more complicated and pressing. The biotic community is as interconnected as ever, though our influences upon it are greater now, and voluntary decency must stretch to serve species and places we don't know and never will. But we can still start in the same place Leopold did: in the chicken coop, and with the problems of the backyard biota.

Is Aldo's land ethic big enough for the modern West? No. But without its propelling force, nothing else will be, either. ■

QUOTED

We asked readers to quote their favorite writers — those whose ideas are driving much of how we think about the world now and into the future. You'll find a sampling throughout the first section of the issue. See more at hcn.org/enviroquotes. **SARAH TORY**

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

—Aldo Leopold

As author, scientist, ecologist, forester and environmentalist, **Aldo Leopold** helped shape the modern conservation movement. He's best known for *A Sand County Almanac*, in which he articulated what he called "The Land Ethic" — a broader understanding of the relationship between people and nature. *Suggested by Carol Underhill*

"The Peace of Wild Things"

When despair for the world grows in me
and I wake in the night at the least sound
in fear of what my life and my children's lives may be,
I go and lie down where the wood drake
rests in his beauty on the water, and the
great heron feeds.
I come into the peace of wild things
who do not tax their lives with forethought
of grief. I come into the presence of still water.
And I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free.

—Wendell Berry

Wendell Berry is a poet, fiction writer and essayist. A passionate cultural critic, he celebrates the small family farmer while promoting an economic and political order that preserves the connections between people and the natural world. *Suggested by Mike Hensley*

DEFINED
Standing Morally, a party whose interests must be considered by other moral beings; legally, a party that can bring suit in court.

Law and nature

The famed dissent of Justice William O. Douglas

BY ADAM SOWARDS

In 1965, the Sierra Club sued to stop a ski development in Sequoia National Forest, California, arguing that Walt Disney Enterprises' proposed resort would constitute an injury to Mineral King Valley. In 1972, the Supreme Court rejected the club's reasoning, unwilling to accept that natural objects had standing to sue in court. Instead, the court urged the Sierra Club to amend its complaint to show how the club's members, rather than the valley, would be injured. The club did so, and the ski resort was stopped.

However, one justice, William O. Douglas, was persuaded by the Sierra Club's original reasoning. His passionate dissent in *Sierra Club v. Morton* marks a pivotal point in environmental legal battles, one that still shapes advocacy today and points the way toward a potentially different way of thinking about nature.

Douglas' views were inspired by his own experiences in the wild. He grew up in Yakima, Washington, hiking the foothills and peaks of the Cascade Range, and he sang the praises of nature throughout his life. "When one stands on Darling Mountain, he is not remote and apart from the wilderness; he is an intimate part of it," he wrote in a typical passage from his memoir, *Of Men and Mountains*. "Every ridge, every valley, every peak offers a solitude deeper even than that of the sea. It offers the peace that comes only from solitude."

An intellectually restless man who wrote and traveled extensively, Douglas published five environmental books between 1960 and 1967. One of them, A *Wilderness Bill of Rights*, argued for a "Bill of Rights to protect those whose spiritual values extend to the rivers and lakes, the valleys and the ridges, and who find life in a mechanized society worth living only because those splendid resources are not despoiled."

In his dissent in the Sierra Club lawsuit, Douglas advocated for a federal rule that would allow for litigation "in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers and where injury is the subject of public outrage." The proper labeling of the case, he argued, should have been *Mineral King v. Morton*.

It wasn't a huge leap from other legal precedents. Douglas pointed out that both corporations and ships had long been parties in litigation, despite being artificial and inanimate. "So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland, or even air that feels the destructive pressures of modern technology and modern life," he wrote. Extending standing to the real party at risk of harm — the environment — would preserve "priceless bits of Americana" before they become "forever lost or are so transformed as to be reduced to the eventual rubble of our urban environment."

Douglas recommended accepting nature's rights — allowing nature's own voice to be heard in the courtroom — as a lasting way to shield wild places and processes from the ever-accelerating threats they faced.

His passionate plea didn't persuade his practical-minded judicial brethren, even if fellow dissenter Justice Harry Blackmun called it "eloquent" and insisted that Douglas read it from the bench. Yet Douglas' opinion influenced and inspired environmentalists at the time and ever since. The Wilderness Society published the "stirring" dissent, and Roderick Nash in his history of environmental ethics, *The Rights of Nature*, said that Douglas had "located the conceptual door

The marbled murrelet, northern spotted owl, and humpback whale, from left to right, have all been involved in court cases with help from humans.
JENNA CRAGG, RHETT WILKINS, NOAA

to the rights of nature." Michael Nelson, an environmental philosopher at Oregon State University, sees Douglas' dissent as "the cornerstone of a new environmental ethic, one premised upon empathy with the human and non-human world alike."

In the years since then, environmental groups have been able to sue on behalf of nature by demonstrating group members' legitimate interest in conservation issues or in places like Mineral King, a concept called associational standing. But despite Douglas' efforts, nature still finds itself marginalized in courtrooms. Much as a Catholic's confession must go through a priest, nature needs a mediator, a conservation organization.

Where all this leads is unclear. The courts themselves have never fully embraced the idea of nature's standing, but they've come close in the years since Douglas' dissent. This has been particularly true for endangered species like the marbled murrelet, the northern spotted owl and the coho salmon — all of which found themselves in court cases as co-plaintiffs alongside humans. Nature has yet to stand alone in court, however.

A decade ago, the 9th Circuit Court faced a test when a lawyer sued the president and secretary of defense on behalf of marine mammals, without a co-plaintiff — essentially the approach that Douglas had promoted. In *Cetacean Community v. Bush* (2004), the court emphatically rejected the species' legal standing, finding no evidence that Congress intended whales or dolphins to have it. The court found nothing preventing the legislative branch from deciding to grant animals statutory standing, however. Still, the prospect of today's Congress acting along those lines seems unlikely on ideological, political and practical grounds, and it's equally unclear that others — judges or policymakers — would agree that the notion passes constitutional muster.

And so it seems unlikely, at least for now, that Douglas' vision of nature as an entity with the right to sue will manifest in our courts. But does that matter? It depends on your criteria. The aftermath of the Supreme Court's decision in *Sierra Club v. Morton* helped establish standing for environmental organizations, thus facilitating environmental litigation. The court's opinion did not extend that right to natural objects, but Douglas' dissent nudged the courts toward recognizing nature's rights. This perspective pointed the way, according to legal scholar Christopher Stone, toward a new "level of consciousness" for the courts.

And so the debate about nature's standing then becomes a broader philosophical debate about law and what it can and can't, or should or shouldn't, do. Law is not intended to transform levels of consciousness or morality; it is a pragmatic discipline. As a practical matter, extending standing to natural objects may simply be unnecessary.

As a moral matter, however, the failure to acknowledge nature's rights frustrates legal and environmental activists and surely would have disappointed (though not surprised) Douglas, who retired from the Supreme Court in 1975, after a debilitating stroke, and died five years later.

Today, global climate change, biodiversity losses and habitat fragmentation are creating unprecedented social and ecological problems. Environmental crises require serious changes in governance and legal systems and, arguably, in morality. When organizations such as the Earth Law Center work to "advance legal rights for ecosystems to exist, thrive and evolve," or when Ecuador declares in its 2008 Constitution that nature "has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes," they are paying homage to Douglas' vision and implementing it in governing structures where law and morality may intersect.

"The idea that what many take to be inanimate objects (such as trees)," Nelson says, "or abstract ideas and the places we apply them to (such as wilderness) or even a 'symbol' (such as a river) can be wronged in some way, and therefore can be represented or spoken on behalf of, is brave and thoughtful. And the idea that those who know most about something and care most for it should be the spokesperson seems wise and helpful as we think about the future and what kind of people we need to be or create (a society) that can and should speak about tough natural resource issues in the uncertain future we all face."

Toward the end of his dissent, Douglas noted that well-meaning advocates often flock to the environmental issue *du jour*, an understandable tendency but one that cannot sustain environmental protection over the long run. "That is why these environmental issues should be tendered by the inanimate object itself," he wrote. "Then there will be assurances that all of the forms of life which it represents will stand before the court — the pileated woodpecker as well as the coyote and bear, the lemmings as well as the trout in the streams. Those inarticulate members of the ecological group cannot speak. But those people who have so frequented the place as to know its values and wonders will be able to speak for the entire ecological community."

Douglas' day may still come. In the meantime, though, we humans, or at least our organizations, will have to serve as acceptable stand-ins. ■

QUOTED

"God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools."

—John Muir

John Muir — the "Father of the National Parks" — was a naturalist, adventurer, author and early advocate of wilderness preservation, who went on to help found the Sierra Club. His eloquent writing continues to influence the modern environmental movement. *Suggested by Jerry Welsh*

"Simplify, simplify."

—Thoreau

When **Henry David Thoreau** published *Walden* in 1854, the notion of "sustainability" held none of its modern cachet. Yet Thoreau's account of building a cabin and living in the woods near Concord, Massachusetts, together with his keen-eyed exploration of the surrounding landscape, helped inspire the modern environmental movement. For him, nature was both an antidote to civilization and a glimpse of the divine, and in celebrating the ground beneath his feet, he proclaimed the value of wild places everywhere. *Suggested by Lawrence Walker*

"In the desert there is everything and there is nothing. Stay curious. Know where you are — your biological address. Get to know your neighbors — plants, creatures, who lives there, who died there, who is blessed, cursed, what is absent or in danger or in need of your help. Pay attention to the weather, to what breaks your heart, to what lifts your heart. Write it down."

—Ellen Meloy

Ellen Meloy wrote about dry places with a strong, distinctive lyricism and a refreshing sense of humor. She saw the irony in the pea-green lawns that dotted the arid landscape she loved but chose laughter over outrage. The Pulitzer Prize finalist was in the middle of her fourth book when she died suddenly at her Utah home in 2004. *Suggested by Amy Maestas*

DEFINED
Object oriented ontology
A philosophical school that rejects privileging human existence over the existence of nonhuman objects.

Hyperobjects

A new way to think about global warming

BY TIMOTHY MORTON

I'm an environmental philosopher. In 2008, I invented a word to describe all kinds of things that you can study and think about and compute, but that are not so easy to see directly: *hyperobjects*. Things like: not just a Styrofoam cup or two, but *all the Styrofoam on Earth, ever*. All that Styrofoam is going to last an awfully long time: 500 years, maybe. It's going to outlive me by a great extent. Will my family's descendants even be related to me in any kind of meaningful way by 2514? There is so much more Styrofoam on Earth right now than there is Timothy Morton.

So hyperobjects outlast me, and they out-scale me in the here and now. Let's think of another example. Not just this one speck of plutonium, but *all the plutonium we've made, ever*. That plutonium decays for 24,100 years before it's totally safe. That's an unimaginable time. I can just about wrap my head around 500 years when I think about Styrofoam. But 24,100 years? Yet I'm obliged to act with a view to the people, whoever they are, who are alive at that point. Who knows whether I would even recognize them as human? Maybe by then we will have merged with a whole host of extraterrestrials. I don't know. I'm like Donald Rumsfeld and his "unknown unknowns": There are things I don't know about the future, and I don't even know how much I don't know about it. But it's coming.

I can't see it. I can't touch it. But I know it exists, and I know I'm part of it. I should care about it.

Plutonium is a problem. Humans made it, so we're pretty much responsible for it. Beyond that, I can understand what plutonium is — which seems like a pretty good reason for assuming responsibility for something. Suppose I see someone about to be hit by an oncoming car. I can understand that she's about to be killed, so I'm obliged to step in and save her. Hyperobjects are like that — like the Dust Bowl, for instance, or the colossal drought in California. We are obliged to do something about them, because we can think them.

That's good news if you care about mitigating the effects of global warming. (I refuse to call it *climate change*. The globe is literally warming because of greenhouse gases.) Thinking ecologically about global warming requires a kind of mental upgrade, to cope with something that is so big and so powerful that until

Light Bulbs **depicts 320,000 light bulbs, equal to the number of kilowatt hours of electricity wasted in the United States every minute from inefficient residential electricity usage (inefficient wiring, computers in sleep mode, etc.).**
CHRIS JORDAN

WEB EXTRA To see more of Chris Jordan's art from his series "Running the Numbers," visit **www.hcn.org**.

now we had no real word for it. However, thinking of global warming as a hyperobject is really helpful. For starters, the concept of hyperobjects gives us a single word to describe something on the tips of our tongues. It's very difficult to talk about something you cannot see or touch, yet we are obliged to do so, since global warming affects us all.

Many people have told me, "Oh, now I have a term for this thing I've been trying to grasp!" We can see, for instance, that global warming has the properties of a hyperobject. It is "viscous" — whatever I do, wherever I am, it sort of "sticks" to me. It is "nonlocal" — its effects are globally distributed through a huge tract of time. It forces me to experience time in an unusual way. It is "phased" — I only experience pieces of it at any one time. And it is "inter-objective" — it consists of all kinds of other entities but it isn't reducible to them.

If you can understand global warming, you have to do something about it. Forget about needing proof or needing to convince more people. Just stick to what's really super obvious. Can you understand hyperobjects? Then you are obliged to care about them.

So hyperobjects are massively distributed in time and space and we are obliged to care about them, even if we didn't manufacture them. Take the biosphere. I can't see it. I can't touch it. But I know it exists, and I know I'm part of it. I should care about it.

Or global warming. I can't see or touch it. What I can see and touch are these raindrops, this snow, that sunburn patch on the back of my neck. I can touch the weather. But I can't touch climate. So someone can declare: "See! It snowed in Boise, Idaho, this week. That means there's no global warming!" We can't directly see global warming, because it's not only really widespread and really really long-lasting (100,000 years); it's also super high-dimensional. It's not just 3-D. It's an incredibly complex entity that you have to map in what they call a high-dimensional phase space: a space that plots all the states of a system.

In so doing, we are only following the strictures of modern science, laid down by David Hume and underwritten by Immanuel Kant. Science can't directly point to causes and effects: That would be metaphysical, equivalent to religious dogma. It can only see correlations in data. This is because, argues Kant, there is a gap between what a thing is and how it appears (its "phenomena") that can't be reduced, no matter how hard we try. We can't locate this gap anywhere on or inside a thing. It's a *transcendental* gap. Hyperobjects force us to confront this truth of modern science and philosophy.

It's like being inside the gigantic worm in *The Empire Strikes Back*. For a while, you can kid yourself that you're not inside a gigantic worm, until it starts digesting you. Because the worm is "everywhere" in your field of vision, you can't really tell the difference between it and the surface of the asteroid you think you landed on.

The person who denies there's global warming because he can still touch snow is partying like it's 1759. He's partying like modern science never happened. Modern science happened largely because of Hume, a Scottish skeptical empiricist. In another life, Hume might have been the bass player for Pink Floyd, because he certainly could have written some of the group's lyrics. "All you touch and all you see / Is all your life will ever be" — that's basic Hume right there. You can't know things directly; you can only know data. That's the foundation of modern science. Cause and effect aren't things that churn away underneath other things. They are inferences that we make about patterns we see in data.

Oddly enough, this makes modern science more accurate and honest than anything we've previously come up with. The thing is, statistical correlations are better than bald statements of fact that you just have to believe or face the consequences. ("The Earth is flat! God is this golden calf!") It's better to say that we're 95 percent sure global warming was caused by humans than to shout, "It was caused by humans, dang it! Just believe me!" You have some actual data to go on, in the 95 percent case. Try rolling two 10-sided dice and coming up with the numbers from 96 to 100. (As a recovering Dungeons & Dragons player, I know what I'm talking about here.) It's incredibly unlikely.

So hyperobjects are funny. On the one hand, we have all this incredible data about them. On the other hand, we can't experience them directly. We've stumbled upon these huge things, like Han Solo and Princess Leia and the giant worm. So we need philosophy and art to help guide us, while the way we think about things gets upgraded.

Human beings are now going through this upgrade. The upgrade is called ecological awareness. ■

QUOTED

"All the creatures on earth, and all the birds that fly with wings, are communities like you."

—Quran 6:38

Suggested by Shayan Ghajar

"It is not enough to fight for the land; it is even more important to enjoy it. While you can. While it's still here. So get out there and hunt and fish and mess around with your friends, ramble out yonder and explore the forests, climb the mountains, bag the peaks, run the rivers, breathe deep of that yet sweet and lucid air, sit quietly for a while and contemplate the precious stillness, the lovely, mysterious, and awesome space. Enjoy yourselves, keep your brain in your head and your head firmly attached to the body, the body active and alive, and I promise you this much; I promise you this one sweet victory over our enemies, over those desk-bound men and women with their hearts in a safe deposit box, and their eyes hypnotized by desk calculators. I promise you this: You will outlive the bastards."

—Edward Abbey

Edward Abbey inspired a generation of radical environmentalists with his spirited defense of wild places. His writing, rooted in the American Southwest, railed against government and corporate greed and its assault on the desert and canyon country.
Suggested by Jim Thurber

DEFINED
Anthropocene A proposed term for the epoch that began when humans started significantly impacting Earth's ecosystems.

A diver and thriving marine life at the bow of the USS Saratoga at Bikini Atoll. The ship sank during underwater bombing tests conducted by the U.S. military in the Marshall Islands. REINHARD DIRSCHERL/VISUALPHOTOS

Keeping the faith(s)

How belief plays into the new conservation debate

BY AMY MATHEWS AMOS

In November, 240 scientists figuratively joined hands to sign an opinion piece in the journal *Nature*, hoping to move beyond internal dissent about the best way to protect wild things — an age-old conservation debate that has resurfaced with renewed intensity in recent years.

The commentary was co-authored by Heather Tallis, lead scientist at The Nature Conservancy, and Jane Lubchenco, a renowned Oregon State University marine ecologist. In it, they accused their colleagues of promoting a false dichotomy: that we must conserve biodiversity either for its own sake or largely to benefit people. Instead, they argued, conservation science should embrace "a unified and diverse conservation ethic; one that recognizes and accepts all values of nature, from intrinsic to instrumental, and welcomes all philosophies justifying nature protection and restoration, from ethical to economic, and from aesthetic to utilitarian."

On the surface, this might seem obvious. Certainly for some of the signatories, it was an affirmation of a higher truth: People value biodiversity and wild places for many different reasons. But after more than 25 years as an analyst for the federal government and conservation groups and consultant to private foundations, I suspect that the fundamental conflict remains, especially for those who consider wild, naturally functioning ecosystems sacred. *Nature* commentary or no, they believe that putting humans at the center of biodiversity conservation will ultimately destroy Earth's coevolved Eden.

This divide has existed for many decades — at least since the days when Gifford Pinchot, the nation's first forestry chief, promoted sustainable use while preservationist John Muir championed national parks. But it emerged with renewed intensity in 2011, with the publication of Emma Marris' book *Rambunctious Garden.* Marris, a journalist, points out an awkward truth about modern conservation: Maintaining the "wildness" of a pre-European ideal takes a heck of a lot of artificial management. She notes, for example, that the National Park Service employs 16 exotic species management teams spread across hundreds of parks. And this kind of conservation will require even more heavy-handedness as the climate changes. Do we help species migrate to new locations, or do we let them sort it out themselves? Marris' solutions are more utilitarian than reverent. Novel, human-influenced ecosystems involving non-native species can be valuable, she believes, providing benefits such as habitat for endangered species, protection for soil and shade for vulnerable seedlings. Instead of fighting the constantly changing natural world, she urges conservationists to embrace it and find ways to make it work.

Rambunctious Garden caused a stir among traditional conservation biologists, most of whom seek to preserve a wild state of nature rather than prune it. The debate really caught fire in early 2012, when Peter Kareiva, the chief scientist of The Nature Conservancy, published a provocative essay for the Breakthrough Institute with his colleague, Robert Lalasz, and University of California-Santa Clara environmental science professor Michelle Marvier. Current approaches to conservation have failed to stem the loss of biodiversity, they charged, despite a tenfold increase in the number of protected areas worldwide since 1950.

Like Marris, they argued that preserving nature while the planet adds billions of people will require greater conservation focus on working landscapes — the farms, timber lots and urban areas that are currently gobbling up space. But they bumped up the rhetoric, criticizing protected areas for displacing indigenous

people, scolding icons like Henry David Thoreau for being hypocrites and challenging the notion that nature is fragile. (They noted, for example, that Bikini Atoll, the site of atomic bomb testing in 1954, supports more coral species now than it did before the bombing.)

The conservation movement has pitted people against nature, they claimed, and in the process, alienated would-be supporters. Environmentalists need to move beyond their focus on protecting biodiversity to providing ecosystem services, working with corporations to integrate the value of nature into their practices, and enhancing natural systems that benefit people to promote economic development for all. Doing otherwise, they stated, is unethical, given the billions living in poverty.

Traditional conservation biologists, who seek to preserve biodiversity, found these ideas heretical. Michael Soulé, professor emeritus at the University of California-Santa Cruz, shot back in the pages of *Conservation Biology*, a journal he helped found, calling Kareiva's approach "a radical departure from conservation." Soulé denounced the move away from protecting nature for its own sake and replacing wild places and national parks with domesticated landscapes. In a flurry of follow-up papers, he and others argued that the "self-centered dogma" of a human-centric approach and the false idol of limitless economic growth would fail to protect natural ecosystems in a world with finite resources. Their arguments were partly scientific but also reflected a fundamental disagreement over core values.

Current research, according to Soulé, supports the connection between biodiversity and ecosystem stability and productivity. Even if a damaged ecosystem can recover, extinction is permanent. But the arguments also reflect deep convictions about the intrinsic value of nature and the moral imperative to protect all species, regardless of their benefit to humanity. "I value, really value, things that have been evolving in a place for hundreds of thousands of years, are well adapted, that have mutualisms and complex relationships with other species," Soulé told me a few months after his editorial appeared. "It's emotional. I'm one of the few scientists who will admit that."

For the most part, the fire and brimstone has since died down. Kareiva and other "new conservationists" deny that they ever called for the abandonment of protected areas as a conservation strategy. Rather, they were simply proposing to expand the toolbox beyond protected areas to enhance natural values on the working landscapes in between. By including conservation projects that provide tangible benefits to people, they argue, conservation can cast a wider net of support.

Kareiva and Soulé added their names to the *Nature* piece soon after its publication. "I don't think anybody has just one set of values as a motivation in conservation," Kareiva told me. "I think (the issue is) painted as people who love the intrinsic value of nature versus people who love people. But I don't think anybody who is motivated by the intrinsic value of nature would want to harm people in the process."

But Soulé remains unconvinced that the conflict can be easily resolved. In the David and Goliath struggle between nature and people, he believes, people will always win. He signed the *Nature* paper, he said, because he agrees that it would be nice if we could all get along. But he fears that a human-centric world will lead to a "homogocene" in which the same few hardy species prevail in degraded habitats around the world, limited only by the gross parameters of climate, while ecosystems that persisted for eons perish.

I share his angst. Those of us raised in the conservation fold of the 20th century bowed to the greats: John Muir, Edward Abbey, Aldo Leopold. Their lofty (and sometimes rebellious) prose resonated with the deepest parts of our souls, validated our heartfelt beliefs, and inspired us to dedicate our lives to protecting Mother Earth. To many of us, there is something deeply spiritual and immeasurably sacred about preserving intact natural ecosystems created and shaped by forces we don't understand fully. It's an article of faith that goes beyond logic.

But I know from heated family arguments at holiday tables and long campaigns on Capitol Hill that not everyone shares my values. Surveys conducted on behalf of TNC confirm my observations. They suggest that, at least in the U.S., emphasizing intrinsic values is preaching to the choir — Democrats who already support conservation efforts — while emphasizing ecosystem benefits can appeal more to the right.

In practice, too, conservation has always reflected different goals and values. Theodore Roosevelt designated the first wildlife refuges to protect birds from the hat trade even as he was creating national forests to produce timber for industry. So I'm embracing the more universal notion tucked amid the otherwise polarizing words of the 2012 Breakthrough essay, that "conservation must demonstrate how the fates of nature and of people are deeply intertwined — and then offer new strategies for promoting the health and prosperity of both."

Surely, there are many paths to environmental salvation. Perhaps if everybody on Earth chose one of them, any one of them, we could begin to reclaim our diminishing Eden. ■

QUOTED

"One of the great dreams of man must be to find some place between the extremes of nature and civilization where it is possible to live without regret."

—Barry Lopez

One of the nation's leading contemporary nature writers, **Barry Lopez** examines the relationship between human culture and the physical landscape. His award-winning nonfiction books include *Arctic Dreams* and *Of Wolves and Men. Suggested by Meg Hards*

"We must define a story which encourages us to make use of the place we live without killing it, and we must understand that the living world cannot be replicated. There will never be another setup like the one in which we have thrived. Ruin it and we will have lost ourselves, and that is craziness."

—William Kittredge

William Kittredge stopped working on his family's eastern Oregon ranch and became a writer at the age of 35. He's since explored such themes as the legacy of agriculture in the West and the impact of ownership and dominion on the land and its people. Along with writing numerous essays, fiction and a memoir, he co-produced the Oscar-winning film based on Norman Maclean's story, *A River Runs Through It. Suggested by Ryan Dorgan*

"On the edge of the rushes stood the black-crowned night heron. Perfectly still. ... It will be this stalwartness in the face of terror that offers wetlands their only hopes. ... She was showing us the implacable focus of those who dwell there."

—Terry Tempest Williams

Activist and naturalist **Terry Tempest Williams** explores issues ranging from women's health and free speech to environmental justice and the connections between identity, memory and place. Her writing is deeply rooted in the sprawling landscapes of her native Utah, with its distinctive Mormon culture. *Suggested by Marcia Hanscom*

DEFINED
Tragedy of the commons
A dilemma of cooperation, wherein self-interest diminishes resources used by the masses.

Poisoning the well

Thinking of pollution as a trespass

BY BENJAMIN HALE

In 2013, Colorado Gov. John Hickenlooper sat before a Senate committee and testified to drinking a glass of fracking fluid, in an attempt to illustrate just how safe hydraulic fracturing can be. He hoped, presumably, to allay growing concerns in what has become one of the West's most contentious energy issues. But in doing so, the former geologist employed a basic assumption about wrongdoing that has long underlain the environmental debate. In my view, this assumption has done far more harm than good to the environmental movement.

Maybe you'd care to join Hick in his swashbuckling imbibition. I certainly wouldn't. Either way, it is easy to see how quickly this kind of discussion can spiral into a futile tug-of-war between two sides: One side insists that the practice is safe, and the other side insists that it's not. Almost all discussions of pollution — oil spills, gas leaks, nuclear contamination, water pollution — end up lost in the same eternal back-and-forth.

Many environmentalists will tell you that we should care about pollution because it threatens to degrade our environment and harm us in some palpable and important way. These statements reflect a much wider tendency within the environmental community to confuse *wrongs* with *harms.*

The so-called "harms view" associates environmental damage with environmental wrongdoing, meaning that the moral complications of pollution can be captured by describing its harmful effects. According to this way of thinking, it is enough to say that it is *wrong* to harm people by adding toxic substances to their drinking water.

But this view, in fact, is not the only way to understand fracking, or any kind

Heather McCartin, who lives in Salt Lake City, wears a breathing mask when she rides her bike during days that exceed acceptable pollution levels according to the Clean Air Act. She says driving her car to protect her lungs would only contribute to the problem.
KRISTIN MURPHY

of pollution. As far as I'm concerned, it's not even the best way to do so. There is a related but less common position that considers the moral complications of pollution not in terms of doing harm, but in terms of trespassing. And trespassing, particularly in the West, is something we can all understand.

According to the "trespass view," what is wrong with fracking — or any kind of pollution — isn't simply that it causes, or risks causing, harm to me and my family. It is that certain kinds of pollution harm me *without my authorization*, without clear justification. One might take this even further: It's not necessarily the harm done that does the moral work of distinguishing pollutants from non-pollutants. It is instead whether the introduction of a substance, or the alteration of a situation, impacts my life in a way that I can and will countenance.

Most of us would agree that it is wrong to harm people or degrade value, but I believe that understanding pollution as trespass is a more useful way to think of many environmental debates — and it might also help us understand why so many people are so viscerally upset about, say, fracking.

Just because there are some dangers associated with fracking does not mean we need to stop it entirely. There are dangers associated with a lot of things we do. And sometimes we agree that it is OK to inflict harm on a person — as when a surgeon operates to remove a kidney that someone is voluntarily donating to a sick person. Likewise, we sometimes willingly degrade value, as when we cut down trees near our homes to protect ourselves against possible forest fires. The difference is that these harms are deemed permissible by the people who are enduring them. These harms are not a trespass.

Consider the serious downsides of relying on the "harms view." It is predicated on the idea that one can determine the moral valence of an act by establishing whether its benefits outweigh the costs. Now imagine a scenario in which a fracking company decides to add fructose as one of the many secret ingredients in its fracking fluid. The benefits, after all, are obvious to anyone with a sweet tooth.

How odd would it be to read that Gov. Hickenlooper had not only poured himself a tumbler of the fluid, but also recommended it to his family? "Mmm. Delicious!"

The trespass view doesn't acknowledge this kind of complication. For example, the oil and gas industry recently launched a campaign to raise money for breast cancer by painting its drill bits pink. In principle, supporting breast cancer research is a noble thing to do, but when it comes from the fracking companies, it has the feel of "buying indulgences": doing good works in order to offset one's sins.

The reason that pink drill bits seem ridiculous is that offsetting harms or costs with benefits doesn't actually offset the moral burden of pollution. The trespass still exists. So the pollution debate is about more than safety. It is also about what kinds of substances we are willing to allow into our bodies, our communities and our environment, and about how we decide who we'll trust to handle those substances.

Objections to pollution are as often about preventing outsiders from polluting *our* water or *our* air, as they are about who gets to make these decisions. What makes it okay for Hick to pour himself a glass of fracking fluid is that *he* is the one who has authorized such drinking. If instead *I* had poured him a glass of fracking fluid and forced him to drink it against his will, or brewed him a cup of tea with fracking fluid and told him afterwards what I had done — "Gotcha!" — I am fairly certain he would feel differently about it. I might even end up in jail. This would be true, I believe, even if the fracking fluid turned out to be perfectly safe and magnificently delicious. Pollution, by its nature, engenders a kind of trespass: It violates the moral space of people without their authorization or good reason.

Clearly, there are middle-ground options that permit some level of industry activity and energy development in some environments, but also restrict it in others.

What makes the introduction of some "pollutants" permissible depends in large part on whether the public can and does accept those substances. Many people simply do not want anyone putting mysterious chemicals in their water supply. Equally so, many industry actors do not want the general public telling them how to do their business. Ensuring that the affected parties — both industry and private citizens — have space to voice their concerns can help us find some middle ground and develop mutually acceptable policies.

The safety discussion is necessary, for sure, and certainly may go a long way in alleviating any unfounded concerns about some of the substances that enter our environment. But it cannot go all the way. It cannot address the question of who is authorized to put which substances where. In a democracy, we have to hash these questions out through a legitimate, public, transparent decision-making process, determining together what we can countenance.

When Hickenlooper and industry advocates seek to reassure the public that fracking holds little risk, they miss the point. It's not simply that there are dangers to health, safety and environment, but that somebody somewhere else is making these decisions and altering the environment in ways that affect a lot of people, and the people who are most affected can do nothing about it.

Don't get me wrong. I'm not naive; I understand the practical difficulties of bridging this divide and bringing multiple voices to the table. Nevertheless, if we really want to overcome the current stalemate, we need to drill deep into the presuppositions that guide our thinking. Once we understand pollution as trespass, and see that it is as important to tackling the fracking debate as the concept of harm, we may finally be able to raise our glasses — *chin, chin*! — and drink together. Even if most of us pass on the fracking fluid. ■

QUOTED

"Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts. There is something infinitely healing in the repeated refrains of nature — the assurance that dawn comes after night, and spring after winter."

—Rachel Carson

Best known for her 1962 book *Silent Spring*, scientist and writer **Rachel Carson** brought environmental concerns into the consciousness of mainstream America. By spotlighting the ecological consequences of pesticide use, her work challenged the practices of agricultural scientists and the government and ultimately led to the creation of the Environmental Protection Agency. *Suggested by Joanne Morris Gores*

"For a long time I realized I had only paid attention to the predators, the scavengers, and the birds that were good to eat and the birds that had to do with hunting. … This looking and not seeing things was a great sin, I thought, and one that was easy to fall into. It was always the beginning of something bad and I thought that we did not deserve to live in the world if we did not see it."

—Ernest Hemingway

Although he's rarely thought of as an environmental writer, **Ernest Hemingway** anchored much of his work in the natural world. His interests went beyond big-game hunting and bullfighting to celebrate outdoor life in the American West, where he was an avid fly fisherman. In his acclaimed short story, *Big Two-Hearted River*, Hemingway perceives nature as an antidote to the trauma of war. *Suggested by Jeff Foster*

DEFINED
Instrumental value A state of affairs that creates another value, opposed to intrinsic value, which is valuable for its own sake.

Beyond greenbacks

Should we put a price on nature?

BY BEN GOLDFARB

"When we're talking about what the future will look like, most of the estimates that interest decision-makers have nothing to do with dollar values."
—Spencer Wood, marine ecologist

The west coast of Vancouver Island boasts the kind of wild shoreline that could swallow a kayaker for weeks. Crenellated with fjords and stippled with islands, it's a place where old-growth stands of Doug-fir yield to rocky beaches, where black bears stalk the tidelines, and where, each March, some 20,000 gray whales cruise by en route to the Bering Sea. Yet even in this natural outpost, human enterprises clash: Cargo freighters and commercial fishermen spar over shipping lanes and fishing grounds; salmon farmers and kayak guides struggle for control of coastal waters; logging, mining and resort-building threaten seagrass beds.

"No one wants to go out there and wreck stuff," Andrew Day, managing director of West Coast Aquatic, a local management board, told me. "But they disagree on the level of restriction that should be imposed to achieve different goals." Anyone who's taken part in a natural resource dispute will recognize the problem. How do you resolve all these conflicts?

In 2010, Day got help from the Natural Capital Project, a Stanford-based cadre of economists, biologists and software engineers whose work meets at the increasingly crowded intersection of ecology, technology and finance. NatCap was founded in 2005 in order to tackle the very quandary faced by West Coast Aquatic — how to juggle clashing human and natural values. To clear up such dilemmas, NatCap's scientists use their diverse talents to consider a question that seems simple but is actually bafflingly complex: What is nature worth?

Starfish near a dock at low tide, Vancouver Island, Canada.
JURGEN FREUND/AURORA PHOTOS

NatCap wasn't the first group to address the problem. In 1997, a team of researchers pinned nature's economic value at $33 trillion worldwide — nearly twice the global gross domestic product, or GDP. That immense value flows from ecosystem services, the natural benefits provided by everything from water-filtering shellfish to soil-forming microbes to storm-buffering reefs. The solution to ecological woes, many policymakers have concluded, lies in incorporating nature's dollar value into decisions. Put a price on ecosystem services, the wisdom goes, and watch the polluters, over-fishers and developers fall into line.

Humans' material reliance on the planet is undeniable, but shoehorning nature into modern capitalism makes for an uneasy fit: Our economy's rapacity is arguably the reason we live in a time of environmental crisis in the first place. The challenge for ecosystem services, then, is to demonstrate our relationship with the natural world without letting its parts be bought and sold like scrap. To that end, as groups like NatCap are figuring out, sometimes the best way to calculate nature's value doesn't involve dollars after all.

THE SCIENTIFIC LITERATURE is strewn with ecosystem appraisals. Bats provide up to $50 billion annually by eating insects; insects offer $57 billion by disposing of waste, pollinating crops and feeding fish and game. Beavers in Utah's Escalante River watershed have the potential to provide hundreds of millions of dollars in flood control and other services. The humble street trees of Corvallis put $4 million in Oregonians' pockets. The Colorado River Basin is worth up to $500 billion every year.

But do these astronomical figures help? In theory, sticker shock can influence hearts and minds — "a gee-whiz way to get people's attention," as Mary

Ruckelshaus, one of NatCap's directors, put it. Huge numbers are meant to convince folks who lack innate tree-hugging tendencies that beavers are more valuable as aquatic engineers than as, say, fur hats. In practice, however, such valuation has fostered more acrimony than consensus. To those environmentalists who keep John Muir on their nightstand, simply being a beaver — or a warbler, skink or pikeminnow — justifies protection.

"In many ways, those early dollar values did a disservice to the concept," Ruckelshaus said. "They caused a backlash: 'How can you put a dollar value on nature? It's priceless, it's sacred.' I understand that."

Despite such reservations, ecosystem services have graduated from a rhetorical device into a conservation tool. Denver Water and the U.S. Forest Service, for example, cut a $33 million deal to manage the forest that supplies the city's water; the utility paid for restoration activities like dead tree removal and beetle mitigation by levying fees on customers. Bellingham, Washington, charges ratepayers to buy land around Lake Whatcom to protect their own water; Medford, Oregon, pays farmers to plant riparian trees that keep streams cool for salmon. The arrangements keep getting more creative: Ducks Unlimited recently sold 40,000 tons of carbon credits to Chevrolet, which will pay farmers not to till grasslands that store carbon and harbor waterfowl.

Not every market-driven conservation project is a winner, though. Take stream mitigation banking, in which restoration companies earn credits by repairing degraded streams, then sell those credits to anyone — logging companies, hotel builders, transportation departments — who expects to damage nearby habitat. The idea is that the free market will improve restoration's efficiency. But according to Indiana University geographer Rebecca Lave, private enterprise and rivers don't always mix. "For the market in stream credits to work, there has to be a defined commodity," Lave told me. But unlike gold or wheat, streams are inherently dynamic — they shift channels, rearrange boulders, build islands and wash them away. That protean nature frustrates evaluation. "If a stream is changing, regulators have no way to certify whether it's OK or not," she said.

The result is that stream mitigation projects tend to promote stable channels — good news if you're a government accreditor trying to create a salable unit, not so good if you hope to restore the life of a river. What's best for the market isn't what's best for the watershed. "We don't have happier, healthier streams because we have markets for them," Lave said. "Mitigation banking has allowed the status quo to continue."

HOW, THEN, MIGHT WE BETTER USE ecosystem services for conservation? NatCap's work with West Coast Aquatic on Vancouver Island could represent one path: a deployment of the concept that doesn't revolve around money.

Picture Vancouver's Lemmens Inlet, a branching, limpid bay dotted with houseboats that empty their toilets directly into the ocean. That's a problem, because the inlet's other inhabitants — kayakers, oyster farmers and native gatherers of wild clams — don't exactly welcome the untreated sewage. So NatCap modeled how ecosystem services would change under two different management plans: One, a "development scenario," in which houseboats and oyster farms increased; and the other, a "conservation scenario," in which the inlet was zoned as a marine park. Under the conservation scenario, kayaking access would increase by more than 50 percent, and water quality by over 30 percent; under increased development, oyster harvest would rise but water quality would decline. Importantly, while NatCap's models did affix a dollar value to shellfish harvest, benefits like clean water and kayaking opportunities were expressed using other metrics — namely, the concentration of bacteria and the extent of paddling routes.

Ecosystem services loom large in the theatre of ideas — savior to some, bogeyman to others. As practiced by NatCap, however, they're just another factor in West Coast Aquatic's planning process. And though ecosystem services has become synonymous with money in the popular imagination, NatCap's clients usually aren't interested in currency. Many Native Vancouver Islanders, for instance, regard shellfish gathering as a cultural amenity, not a pecuniary one. Slapping a price tag on it would be beside the point. "When we're talking about what the future will look like, most of the estimates that interest decision-makers have nothing to do with dollar values," said Spencer Wood, a marine ecologist who helped lead the project.

Ecosystem services may never be perfectly equipped to save biodiversity. Not every species is a crucial rivet holding aloft the machine of civilization: After all, forests can filter water and store carbon without any help from wolverines. But as Wood will tell you, there's room in NatCap's models for wildlife — as long as the folks calling the shots value its survival. Whether we rely on traditional or new forms of conservation, our ability to coexist with fellow creatures is fundamentally a matter of human will. There's no way around it. "Just like access to clam beaches was important to them, so was having whales and eelgrass beds," Wood said. "To me, there's no conflict there."

Last year, NatCap withdrew from Vancouver Island, leaving behind its models and maps for West Coast Aquatic's use. Andrew Day and his constituents are still figuring out how they want to use all that science; inevitably, they've adopted some pieces and dropped others. Among the abandoned models are the black-and-white scenarios labeled "conservation" and "development." "We want to build relationships, rather than push sectors into artificial camps," Day said. "You can fall into a polarization trap: 'Do we take an action out of a belief in the intrinsic value of nature, or for totally mercantile self-serving reasons?' Well, why not use whatever motivation you can find?" ■

QUOTED

"We simply need that wild country available to us, even if we never do more than drive to its edge and look in. For it can be a means of reassuring ourselves of our sanity as creatures, a part of the geography of hope."

—Wallace Stegner

Often called the "Dean of Western Writers," **Wallace Stegner** is best known for his biographies of John Wesley Powell and Bernard DeVoto, and for his acclaimed novel *Angle of Repose*. His conservationist manifesto, *Wilderness Letters*, helped lead to the passage of the landmark National Wilderness Preservation System in 1964. *Suggested by Matthew R. Durrant*

"Places matter. Their rules, their scale, their design include or exclude civil society, pedestrianism, equality, diversity (economic and otherwise), understanding of where water comes from and garbage goes, consumption or conservation. They map our lives."

—Rebecca Solnit

San Francisco-based writer and activist **Rebecca Solnit** is the author of 15 books, ranging from meditations on landscape and community to art, politics and the power of stories. Underlying all her work is a love of wandering, a delight in the many ways in which a person can, and should, get lost – both in the natural world and inside the self. *Suggested by Derek Young*

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NEW ARCHITECTURE ON INDIGENOUS LANDS,
Joy Monice Malnar & Frank Vodvarka
University of Minnesota Press, 2013
272 pages with 20 black-and-white illustrations, 20 black-and-white plates and 155 color plates. $39.95 softcover, $120 hardcover.

In 1996, government housing policies on tribal lands became more flexible, inspiring the creation of a new kind of modern architecture. No longer bound by federal rules of housing and design, Native communities were able to complete buildings and spaces that were more reflective of their own cultures. In *New Architecture on Indigenous Lands*, Joy Monice Malnar and Frank Vodvarka have assembled a cogent collection of those designs and the principles behind them. Malnar, a professor of architecture at the University of Illinois at Urbana-Champaign, and Vodvarka, a fine arts professor at Loyola University Chicago, go beyond the subject of design to consider the culture and tradition behind it. It's a small antidote to the lament of Black Elk, a Lakota holy man: "The Wasichus have put us in these square boxes. Our power is gone and we are dying, for the power is not in us anymore."

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Storytelling Room oculus at the Senator John Pinto Library at Diné College, right. The central structure at the Southern Ute Cultural Center and Museum, below, was designed to evoke elements of a wickiup.
FRANK VODVARK, RIGHT; SCOTT SMITH, BELOW

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Farewell to Theo Colborn

Theo Colborn, an influential environmental scientist, died Dec. 14 at age 87, in Paonia, Colorado. After spending years as a pharmacist and sheep farmer in western Colorado, she decided to study watershed science, earning her doctorate at 58. Her Great Lakes doctoral research found manmade chemicals harming fish and wildlife; the findings helped introduce scientists and policymakers to the consequences of endocrine disruption.

Theo worked as a congressional research fellow and then a scientist for the World Wildlife Fund in Washington, D.C., and helped organize the first gathering of researchers studying endocrine-disrupting chemicals in 1991.

Her 1996 book, *Our Stolen Future*, coauthored with J. Pete Myers and Dianne Dumanoski, explained how chronic exposure to chemical compounds in flame retardants, pharmaceuticals and fragrances is stunting human development and increasing the incidence of cognitive and behavioral disorders, infertility, thyroid problems and cancers. In 2003, Theo founded The Endocrine Disruption Exchange (TEDX), a research clearinghouse. She received many awards for her work, including the TIME Global Environmental Heroes award, in 2007, and the Jonathan Foreman award from the American Academy of Environmental Medicine, in 2014.

"She was a visionary," says Carol Kwiatkowski, executive director of TEDX, "(with a) commitment to uncovering the truth and sharing that information."

CORRECTIONS

In our Dec. 22 issue, the cover story, "The Dust Detectives," left off a portion of the name of the institution employing atmospheric chemist Kimberly Prather: The Scripps Institution of Oceanography at the University of California, San Diego in La Jolla. The article "Descent through time" mistakenly identified Georgia Tech paleontologist Jenny McGuire as Jess Miller-Campe. On the Letters page, the Stevens cartoon wasn't quite as funny as it should have been, since the words dropped off when we placed the final art. See the full cartoon below.

Alert reader John Karon of Albuquerque, New Mexico, sent us a note about our obituary for activist Martin Litton: "I am likely the 1000th person to send in the correction that Martin was NOT the oldest man to raft the Colorado through Grand Canyon, but the oldest to row his own dory through the Canyon." Thanks, John.

The restoration project map in our Dec. 8, 2014, cover story "The Great Salmon Compromise" had a typo and a misplaced label. The Pend Oreille River comes out of Lake Pend Oreille in Idaho, but it enters the lake as the Clark Fork.

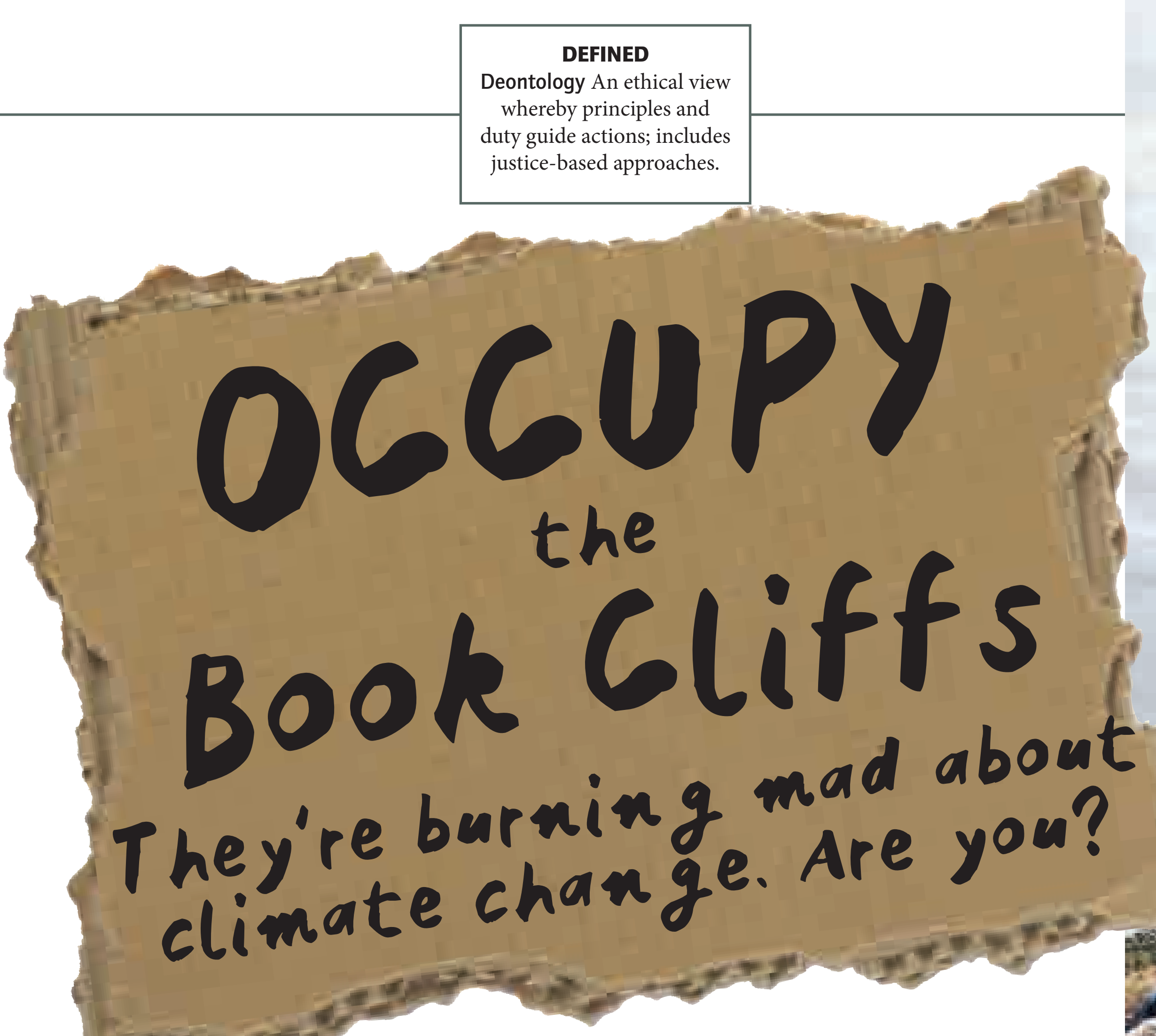
In our Nov. 24 story on trains carrying crude oil, "a sunny weekend afternoon in July" became one in September, due to an editorial mixup. *HCN* regrets the errors; we all got nice big lumps of coal in our stockings.

—Joshua Zaffos and Jodi Peterson for the staff

"Your meal will be out shortly. The salmon was a little wilder than we anticipated."

STEVENS / THE NEW YORKER COLLECTION / WWW.CARTOONBANK.COM

DEFINED
Deontology An ethical view whereby principles and duty guide actions; includes justice-based approaches.



ESSAY BY CALLY CARSWELL

Starting last May, a small group of radical climate activists, mostly from Salt Lake City, spent five months camped on the East Tavaputs Plateau, a jumble of conifer-choked canyons and broad sandstone and shale ridges in eastern Utah commonly known as the Book Cliffs. In the beginning, they adhered closely to Bureau of Land Management rules: They moved camp every 14 days, packing up tents, sleeping bags and camp chairs; the makeshift toilet, nicknamed "dirty Herbert" after Utah's governor; and a hanging sweater rack repurposed into a lending library, which included literature by Toni Morrison and Louise Erdrich along with nonfiction on oil, imperialism and anti-coal activism. Flies found them quickly at many new spots, and they'd spend a couple of insufferable days swatting thin air. Then, the bugs seemed to dissipate, perhaps thanks to bats.

As the months wore on, their diligence about relocating exactly on time faltered slightly. But in theory, it was important to do so, and generally to keep everything about camp aboveboard, because the things they did outside of camp weren't always, and they didn't need additional scrutiny.

The activists called their camp a "permanent protest vigil," its purpose to monitor and impede construction of what could become the first tar sands mine in the U.S. They have stood in front of and locked themselves to heavy machinery. Once, they dressed up as chipmunks and chased road graders around a construction site. At least one woman trespassed regularly into the mine's test pit, to see if there was anything worrisome worth documenting.

The September weekend that I dropped in, the activists were hosting a special campout to encourage locals to "connect with the land." After a long drive on winding backroads, I found the camp on the shoulder of a sweeping ridge, hidden among a stand of pine and fir. Tents pincushioned the forest floor on either side of a slim spur crammed with cars and pickups and ending in a tight turnaround — a cul-de-sac in the woods. The days I was there, activists wore jeans, T-shirts, fleece, clogs and hiking boots. People read books around the fire-pit, and lounged in the kitchen, an elaborately tarped affair with a spice rack and serving buffet. They slept in, brewed endless pots of coffee, and told camp tales: of encounters with bears, hikes gone awry, epic meals prepared and eaten (one involved cashew cream sauce). It felt pretty laid-back for a hotbed of radicals intent on revolution. Then again, it was the weekend.

On Saturday morning, with the wind calm and temperature pleasantly climbing, I joined the "morning circle" — around 15 people, sitting in camp chairs or on five-gallon buckets or in the dirt around smoldering coals. Each person introduced themself, and gave their preferred gender pronoun — he, she or they — which everyone was asked to respect. Vigil stalwart Raphael Cordray, who once owned a gift shop for radicals in Salt Lake, volunteered to lead a tour of the test pit. Chad Hamblin, a high school science teacher, offered to lead a nature hike. Kathy Albury, a member of the environmental ministry at Salt Lake's Unitarian Church, wanted to march on Sunday, the same day demonstrators would clog Manhattan for the People's Climate March. Rachel Carter, also from the Salt Lake area, agreed: "These sources of extraction are where people should be marching," she said, and suggested a hashtag: #comeherenextyear.

Then it was on to explaining "camp norms," which were scrawled in colored

Protesters disrupt construction of the road to the tar sands project in the Utah Book Cliffs in July 2013.
PEACEFULUPRISING.ORG

marker on a cardboard sign hanging from the food trailer: Don't talk to the cops; no racism, sexism, transphobia or other forms of bigotry; no violence of any kind. Also, "no pants at the fire pit" — code for no cell phones, which could be tapped by police, the FBI, or other Big Brothers. Welcome to the resistance.

I FIRST HEARD OF THE VIGIL in July 2014, after reading a newspaper story about one of its rowdier moments. It came after a weeklong campout, when 80 or so people came to the Book Cliffs to learn about community organizing, nonviolent direct action and "climate justice" — the idea that climate change solutions must alleviate the social and environmental burdens our energy economy disproportionately imposes on the world's poorest, usually non-white, people.

Before dawn on July 21, a group of activists had made their way to a fenced lot where U.S. Oil Sands, the mine's developer, kept its heavy machinery. Their goal: to stop construction for the day. Though sheriff's deputies were camped out there, a few activists slipped in and locked themselves to the equipment. Around 20 others linked arms and stood or sat outside the fence, blocking the road. By the end of the day, deputies had carted 21 people off to the Uintah County jail.

Reading about it brought me back to a crowded theater in Paonia, Colorado, where in 2013 I watched the documentary *Bidder 70*. It tells the story of Tim DeChristopher, a University of Utah student who, in 2008, made bids at a BLM oil and gas lease sale, driving up prices and winning 14 parcels he did not plan to drill, worth $1.8 million he could not pay. DeChristopher spent 21 months in federal prison, becoming a minor folk hero in the process.

I remember being impressed by DeChristopher's eloquence and unbending adherence to his principles. He deliberately broke the law to keep the oil and gas in the ground — to prevent the greater crime of more carbon pollution, he said — and refused a plea bargain. But there was something disquieting about his story and the images of his comrades storming the Interior Department in Washington and getting arrested; weeping outside the Salt Lake courthouse after his sentencing, sitting in the street, refusing to move, getting arrested. Climate change stirred something in him — in them — that it had yet to stir in me. Anger, maybe? Passion? I wasn't sure. But it was an emotion I didn't recognize in myself, or in most of my friends.

Which left me feeling conflicted. I'm an environmental journalist, well informed on climate change. I write stories about the science, which keeps getting worse, and the policy, which keeps standing still. I write about irrevocable changes to the mountains and deserts I love, and about how drought and heat could render some of them uninhabitable. I know the climate crisis is big and bad. And yet I don't get angry about it,

New York City street art featuring Tim DeChristopher, who became famous for bidding on parcels at a BLM oil and gas lease auction that he never intended to drill. WALLY GOBETZ, CC VIA FLICKR

not *really* angry. Neither do most of my well-informed and idealistic friends. But shouldn't we?

Reading about the U.S. Oil Sands lock-in, and remembering DeChristopher's story, made me curious about what was brewing in the Book Cliffs. Did these people know something I didn't? More to the point, did they feel something I didn't?

AFTER SATURDAY'S MORNING CIRCLE, I piled into a big white van with seven others to tour the mine's test pit, a few minutes down Seep Ridge Road, which was in the process of being widened and paved for future industrial traffic. At the pit, vegetation had been cleared, a berm cut into the ridge, and a hole dug, exposing brown, gray and ebony rock layers. Rainwater had created a pond the color of dark tea, where Raphael Cordray said she had seen cows drinking. She suspected it was toxic.

The tour was for outsiders (mainly me) and visitors from the nearby Uinta Basin who opposed the mine but came up only occasionally. There was Stagg, who goes by one name only, along with David Bell and Lori Savage. They all lived around Roosevelt, Utah, population around 7,000, some 90 miles away. Hamblin, the science teacher, also from the Roosevelt area, was up for his third campout and brought his dad. He was excited to meet like-minded neighbors; environmentalists are few in the Uinta Basin, home to Utah's top oil and gas producing counties. Still fewer are those willing to speak out against energy development. "It feels like the Lone Ranger out there sometimes," he lamented.

U.S. Oil Sands, a Canadian company, had secured permits and leases on state trust land, leaving environmentalists without legal leverage to stop it. Now, the company was clearing a building site for a processing facility, aiming to begin commercial production in 2015. CEO Cameron Todd told me the company respects the activists' right to voice their opposition, but that their tactics sometimes crossed the line and posed safety risks. He said his company is willing to engage anyone interested in figuring out better ways to do things, but added, "There's not much of a dialogue (you can have) with people who just don't want things to happen."

The construction activity was at the building site, but there were actual tar sands to see at the test pit. A future mine was easier to imagine here. On the south-facing slope below the pit, thick, jet-black goo oozed from rocks, forming drip patterns like coagulating blood, with the dry, oppressive smell of fresh asphalt.

As others scrambled downslope to check out erosion and fossils, Hamblin and I lingered on the rim. A tall, solid man with a full beard and lively eyes, Hamblin had an encyclopedic knowledge of plants and animals. Zeal for nature burst from his lips like light from a sparkler. He snapped photos, calling out that he had casting equipment if anyone found animal tracks.

The night before, he'd sported a "Bidder 70" baseball cap — a nod to the DeChristopher film. Like some others, DeChristopher was part of the reason he was here. In 2011, he spent a weekend camping around Dinosaur National Monument, where he ran into an acquaintance who said that his camping spot would have become a "big oil well" if not for DeChristopher. That inspired him to later drive two-and-a-half hours to Salt Lake to see the movie, which is where he met some of the activists and learned about the tar sands development.

Hamblin bemoaned what he saw as the loss of public-land access to energy development. He recalled a university lecture about permafrost thawing: "I was the only member of the public who came," he said. "It was like, 'Wow, she's saying a lot of what's going on is not reversible.' I like to cross-country ski, and climate change is making it so there's less snow and more rain. I'm concerned on a lot of levels."

Soon, we climbed back in the van, and bumped down the road to see the scar of a failed 1980s mine. I asked why they called the camp a "vigil." Lionel Trepanier, co-founder with Cordray of Utah Tar Sands Resistance, one group behind the protest, explained that "vigils" were considered by courts to be constitutionally protected free speech. "Although there are tents and a kitchen, this isn't camping," he said. "The vigil is the presence."

"So is it like being a witness?" Hamblin asked. Yes, several people replied.

"If we're here and witnessing what's going on, then we'll know other ways to respond," Corday said, adding that their presence draws attention to the little-known mine. "And it creates a place people can come and learn about the issues. It's a safe place if they want to show their discomfort and not be arrested."

THE NUMBER OF PEOPLE willing — even eager — to risk arrest trying to stop fossil fuel developments is still small. But it seemed notable to me that they existed at all.

The same month Tim DeChristopher went to prison, in 2011, 1,200 were arrested in Washington, D.C., protesting the proposed Keystone XL pipeline, which would carry Canadian tar sands to Gulf Coast refineries. Keystone helped galvanize the national climate movement, thanks to organized opposition from the tribes, ranchers and farmers whose land it would cross, and from prominent activists like former NASA scientist James Hansen. Protests small and large, in Washington and elsewhere, have followed the 2011 demonstration. Getting at tar sands and making the oil takes a massive amount of energy, making the fuel hugely carbon intensive. "If Canada proceeds, and we do nothing," Hansen wrote in *The New York Times* in 2012, "it will be game over for the climate."

But there are mini-Keystones all over — smaller pieces of less politically and environmentally significant infrastructure that are the foundation for a rush on fossil fuels right here at home, including tar sands. Grassroots activists have taken notice, loudly opposing developments of all sizes and consequence.

In Massachusetts, a coalition aims to stop all new fossil fuel infrastructure, including three gas-fired power plants and one pipeline expansion. Massachusetts activists were among those who blockaded the Federal Energy Regulatory Commission's offices for a week in the fall. More than 100 were arrested in D.C. and related protests, according to organizers. A Michigan man was recently given a suspended two-month jail sentence and one year of probation after being convicted of a felony for skateboarding inside an unfinished pipeline and refusing to leave.

Participants in the 2014 permanent protest vigil at the tar sands pit, top, where some concealed their identities as they trespassed onto the mine property. At left, one of the campsites for the months-long protest. Camps were packed up and moved about every two weeks, in accordance with BLM regulations.
COURTESY TAR SANDS RESISTANCE AND MELANIE MARTIN

In upstate New York, locals have blocked the entrance to a gas storage facility since October, protesting a FERC-approved expansion. At press time, 170 had been arrested.

My question was not whether the activists in Utah or these other incidents were right, wrong or somewhere in between, or whether in each case their tactics were justified or strategic. I wanted to know what motivated them. Civil disobedience involves some level of personal risk, and people wouldn't engage in it, I assumed, without feeling a powerful emotional involvement; the kind of intellectual response many of us have to the climate crisis is simply not enough.

"Be as frank as possible," an editor at *High Country News* advised before I began reporting. "They're not like regular people. They're not just saints. They have a certain personality."

"NATURE WALK DEPARTING!" crowed a few not-just-saints in unison, standing by the campfire, lit despite Saturday evening's lingering warmth. Hamblin led a group down a trail and into a stand of Doug-fir, piñon and juniper, carrying a shepherd's crook in one hand, a camera carabineered to his shirt. He wondered aloud if finding threatened or endangered plants might help stop the mine.

We lingered on a southerly slope, under a haggard old piñon, its roots snaking out from the tan soil as though coming up for air. Among them, we discovered an antlion, an insect whose predatory larvae bury themselves in sand, awaiting prey. We poked its pit with a twig, which it attacked, provoking *oohs!* and more pokes.

I wandered back uphill to camp with Rachel Carter, a dedicated member of Peaceful Uprising, a Salt Lake climate justice group sponsoring the vigil. It was co-founded by DeChristopher after the BLM auction and has continued working locally, though he moved out of state to attend Harvard Divinity School. Carter wore a shaggy pixie cut and army-green pants. Her black T-shirt with its cut-off sleeves proclaimed: "I Am The Carbon Tax."

Though Carter didn't spend all season here, she frequently delivered food that Salt Lake supporters donated and foraged from suburban grocery dumpsters, and joined for special campouts. I asked her why she joined Peaceful Uprising and was surprised to learn she was relatively new to environmentalism and radical activism, if not unfamiliar with it. Her Mormon parents were members of the ultra-conservative John Birch Society, which fought communism and the civil rights movement in the 1950s and '60s. She joined at 15 and was raised believing Joseph McCarthy was a hero. But as she grew older, she became uncomfortable with her family's politics. She moved to Seattle and "was liberalized but not activated," as she struggled to sort out her feelings on Mormonism. "My approach for a long time was just no involvement with anything," she said.

In 2008, she moved back to Utah, right after Proposition 8, which sought to ban same-sex marriage, passed in California with hefty support from the Mormon Church. Carter, who had left the church, was incensed that it had entered politics "in a way that fucked a lot of people over." A rare protest was held outside the Salt Lake Mormon Temple just before she moved home. Then DeChristopher went to the BLM auction. "There was a lot happening, and it was exciting," she told me. "There's something about being an under-

MYCHAYLO PRYSTUPA, VANCOUVER OBSERVER

COURTESY GREAT PLAINS TAR SANDS RESISTANCE

"Every successful social movement in our history has been unrealistic. Even people who were anti-slavery thought abolitionists were completely nuts."

—Tim DeChristopher, activist who went to federal prison after bidding on BLM oil and gas leases

dog that engages me. Democrats being an underdog in Utah, I was interested in trying to help change that."

She volunteered with LGBT advocacy groups and worked with the Utah Democratic Party. In 2010, she got involved with people in Peaceful Uprising after DeChristopher posted an ad on Craigslist seeking a "courageous congressperson" for Utah's 2nd District. He and his cohort were fed up with conservative Utah Democrat Jim Matheson, who had voted against health-care reform and cap-and-trade. So they decided to "hire" his replacement. "Must have solid moral values and a resistance to selling out to corporate interests," the ad said. Job responsibilities included "stopping catastrophic climate change" and "ending imperialistic wars of aggression."

At a local library, Carter watched while select "applicants" answered questions. That night, a candidate was chosen. "There wasn't a ton of overhead and bullshit and bureaucracy," she said. "And it was just a lot of fun." She worked on the campaign (it failed after forcing Matheson into a runoff), and about six months later, helped prepare for DeChristopher's trial.

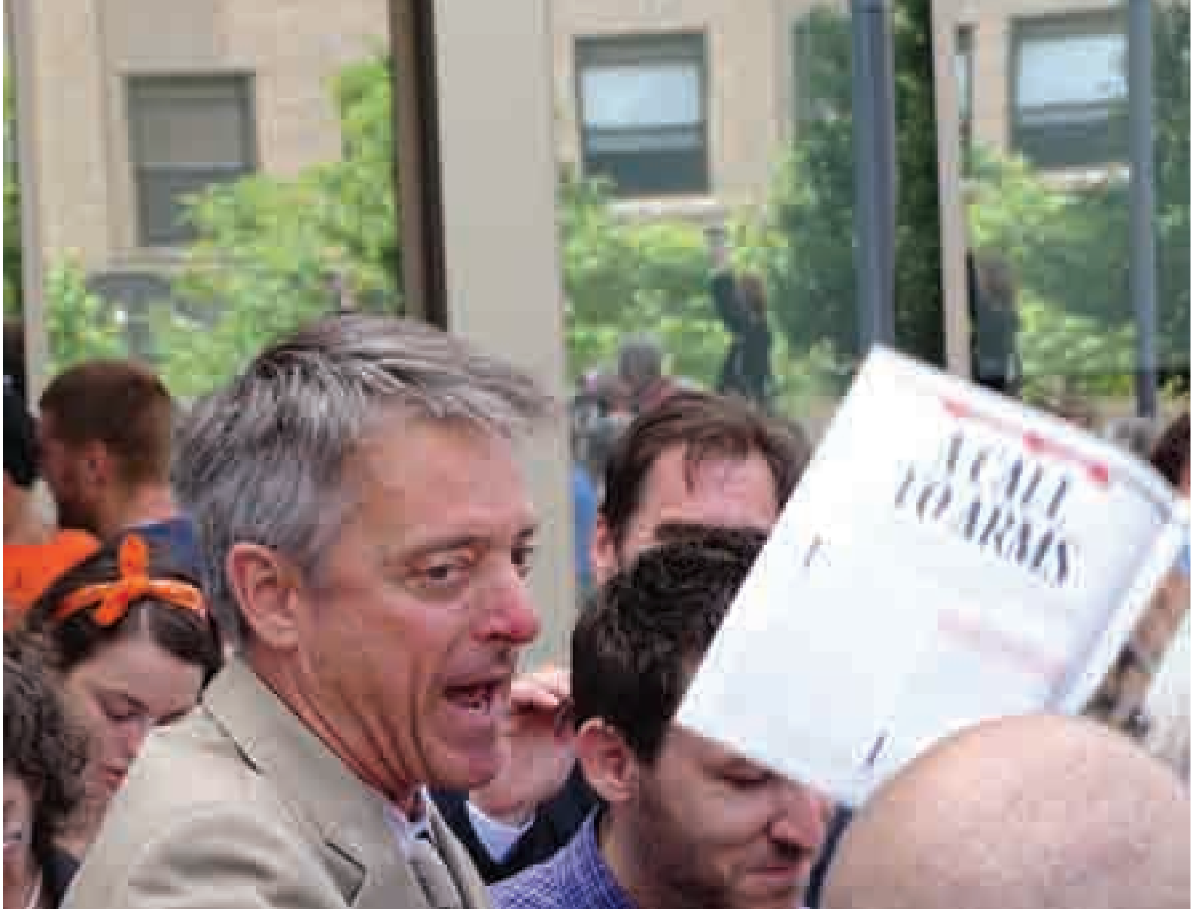
"The climate end of it was not one of my main reasons for getting involved with Peaceful Uprising," she said, as we stood on the edge of camp. "It was more about the culture of the group and what they were creating. It was a really creative, energetic group of people."

I heard a similar story from Jesse Fruhwirth, a member of Peaceful Uprising and vigil keeper, who was among the 26 in court this month. In early 2011, he was a reporter for *City Weekly*, Salt Lake's alternative paper, covering criminal justice, homelessness, DeChristopher's trial, and a 2011 effort by the Utah Legislature to gut open-records laws. It was the first time his editors allowed him to "throw objectivity to the wind and be blatantly biased toward open access," he told me in a phone interview. "I felt like in real life I was a polarizing firebrand, but that journalism snuffed that out. Not everyone has that, and I feel like it's the best thing I've got."

By the spring of 2011, though, Fruhwirth was feeling burnt out, and thought his body was showing signs of stress. Once, when someone hugged him, he said, it broke a rib. He quit and bought a vegan hot dog stand in downtown Salt Lake. But though he'd gotten a taste for polemics, he wasn't sure how to satisfy it. He thought a lot of activism lacked a winning strategy. When a friend dropped by the hot dog stand to tell him about planning meetings for Occupy Salt Lake, late in the summer of 2011, he remembers mentally rolling his eyes. But once the Occupy encampment was established, in early October, he stopped by. He was surprised to see a homeless woman he knew from his reporter days running the welcome booth. "It didn't match my stereotype of what an activist was," he said. "I was very inspired to see homeless people acting politically with non-homeless people." He joined the camp.

Occupy Salt Lake lasted a little more than a month before the city police dismantled it. Both Fruhwirth and Carter were arrested during the eviction. Some activists returned to their day jobs, Fruhwirth said, "but some of us joined the revolution and never looked back." He found Peaceful Uprising one of the few refuges for the newly radicalized in Salt Lake. Climate change was not his top priority, but neither did these seem like typical environmentalists. "I'd heard Tim DeChristopher question capitalism," he told me. "Hearing an environmentalist talk about capitalism was not quite as awesome as seeing a homeless person running the welcome booth at Occupy, but it was one of those moments."

Peaceful Uprising members told me their goal at present is to stop "extreme energy extraction" on the Colorado Plateau. Grassroots activists across the country are converging on a similar aim: No new infrastructure for the extraction, transportation or burning of fossil fuels. "Not here, not in Fort McMurray, not in Mobile, Alabama," Lauren Wood, an early Peaceful Uprising member who just left the group, told me. "Not fracking, not oil, none of it." It's a tall order; stopping even one Utah mine will be tough unless tumbling oil prices change things for the company. Yet the activists' ultimate goal is even more ambitious: to end growth-at-all-costs capitalism and oppression in all forms — to fundamentally restructure the entire economic and social order.



PETER BOWDEN, COURTESY LOBSTERBOATBLOCKADE.ORG

"Of course it's too big," DeChristopher told me, when I reached him by phone and inquired about the grassroots movement's ambitions. "If we're going to create any kind of change, it's going to have to come from a mass movement. And to effectively mobilize people you need a big vision," he said. "Every successful social movement in our history has been unrealistic. Even people who were anti-slavery thought abolitionists were completely nuts. There had literally always been slavery until it was banned. Why not aim for something we actually want? Why not aim for the kind of world we want to see?"

On Saturday night back in the Book Cliffs, I crawled into my tent and opened *The Monkey Wrench Gang*. I'd brought it with me, guessing that Abbey's environmental call-to-arms had helped inspired the activists. If so, it never came up.

LATE SUNDAY MORNING, under a pocket of blue sky, some 30 people climbed out of vehicles onto Seep Ridge Road. One man wore a colorful clown mask; another played "This Land is Our Land" on a saxophone. A brown-and-white teacup of a dog scampered about, its fur ruffled by a whiplashing wind.

A couple of people unfurled a banner — "Together and Everywhere We Rise Up for Climate Justice" — and the group marched toward the test pit. The banner was a nod to the People's Climate March, now underway in New York, where hundreds of thousands jammed the streets in an event *Politico* described as "a coming-out party for a new breed of environmentalism — one that's louder and rowdier than the old-school greens."

The Utah activists hoped the New York march would accomplish something but were disappointed with its tame approach. It was planned in cooperation with the police and did not confront any specific threats. They were more jazzed about Flood Wall Street, a more aggressive, unpermitted sit-in planned for the following day. Its slogan: "Stop capitalism. End the climate crisis."

Here, though, things were pretty tame, too. When the marchers arrived at the test pit, about half of them scrambled through an opening in the fence, past "no trespassing" signs, some with bandanas or scarves pulled up like bandit masks. They stood beside the pit's brown pond and posed for pictures. The clown climbed atop a pile of excavated rock and thrust a "No Tar Sands" sign in the air. Others stayed on the legal side of the fence, either not interested in breaking the law, or seeing little value in it in this instance. The cops never appeared; I was the only reporter. There was scarcely anyone out here to witness it. Nevertheless, the protesters were here to say "no" to the mine because, as a white-haired woman from Moab named Dorothy put it: "These days, if you're not saying 'no,' you're saying 'yes.' "

I DROVE HOME AFTER THE MARCH, where on and off for the next couple months, I tried to figure out exactly what I had learned about the climate activists and about myself.

I was surprised by how little they resembled the environmentalists I usually interviewed. There was little talk of the finer points of renewable energy policy, little time spent lamenting the death of trees, or the troubles of pikas and polar bears. But immigration reform came up. The legacy of colonization for Native peoples came up. Capitalism and its sins came up — a lot.

Radicals, more than one person told me, try to attack the roots of problems. The word "radical," they said, means "going to the origin." And the members of Peaceful Uprising have come to believe that the root cause of climate change and other massive problems, like income inequality, is the profit-hungry capitalist system we're all part of, and especially the people at the top of it.

"This isn't just about CO_2 in the atmosphere and parts per million," Carter told me. "The various oppressions that have led up to this have been going on for centuries. All of these things are feeding the same system of overlapping and self-reinforcing problems." To Carter and her comrades, climate change represents the last, worst example of the unjust relationship between rich and poor, white and black, colonist and Native. "The refugee crisis we're going to be seeing will affect the most marginalized. Wars — that is real."

I got some of what they were saying

Please see **Occupy** *page 54*

Canadian scientist and environmentalist David Suzuki, far left, fired up after his grandson, Tamo Campos (behind) was arrested at a protest against energy company Kinder Morgan's pipeline expansion at Burnaby Mountain, a Vancouver, Canada, suburb. Alec Johnson, center, strapped to an earth mover in protest of the KXL pipeline. Above, Bristol County, Massachusetts, District Attorney Sam Sutter waves a *Rolling Stone* article by Bill McKibben as he speaks outside a courtroom after announcing a deal to drop charges against two environmental activists who had blocked a coal shipment.

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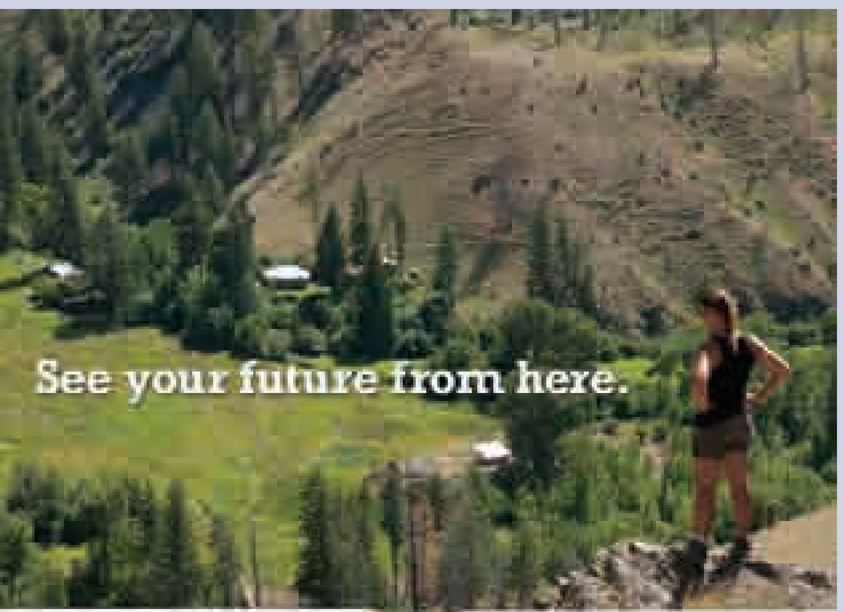

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PHILOSOPHY ED.

New push in an old field

BY ALEX CARR JOHNSON

In response to escalating environmental crises such as climate change and forest decline, many colleges and universities across the West are developing a variety of on-the-ground action-oriented degrees. Students who seek to shape future landscapes, cities and infrastructure can take advantage of an array of programs that range from land management to environmental policy, sustainable business to wildlife biology. Yet a growing number of environmentally minded students are gravitating toward one of academia's oldest fields: philosophy.

Courses in environmental philosophy and ethics push college students to ask the broadest and most basic questions about the underlying social causes of current crises. What deep-seated values in our society discourage the acknowledgment of ecological limits? What ethical frameworks might lead us toward a more sustainable future?

"Among young people, there is a real hunger for dealing with these kinds of questions," says Philip Cafaro, professor of philosophy at Colorado State University. "The baby boomers were about having everything. They were looking for win-win solutions. They found lots of successes, of course, but an ecologically sustainable society has not been one of them."

Can environmental philosophy and ethics programs spur younger generations to build a sustainable society? Students, faculty and universities seem to think so. Colorado State University is just one of dozens in the West now offering degrees and certificates in environmental philosophy at the undergraduate and graduate levels. Many more colleges and universities offer at least some environmental ethics coursework within their philosophy or environmental studies departments.

Environmental ethics courses are filling up more quickly than ever before, and not just with philosophy geeks. Students from a variety of fields, including biology and geoscience, are enrolling in increasing numbers. "Students are realizing that to only understand hydrological processes is useless without also understanding the broader social and ethical issues that have produced them," says Lisa Floyd-Hanna, professor of environmental studies at Prescott College.

The following list highlights some of the West's most robust environmental philosophy programs. Though far from comprehensive, it reveals the wide array of philosophical offerings now available to students regardless of major. Perhaps we'll all sleep a little better at night knowing a more ethically minded workforce is on its way.

What deep-seated values in our society discourage the acknowledgment of ecological limits?

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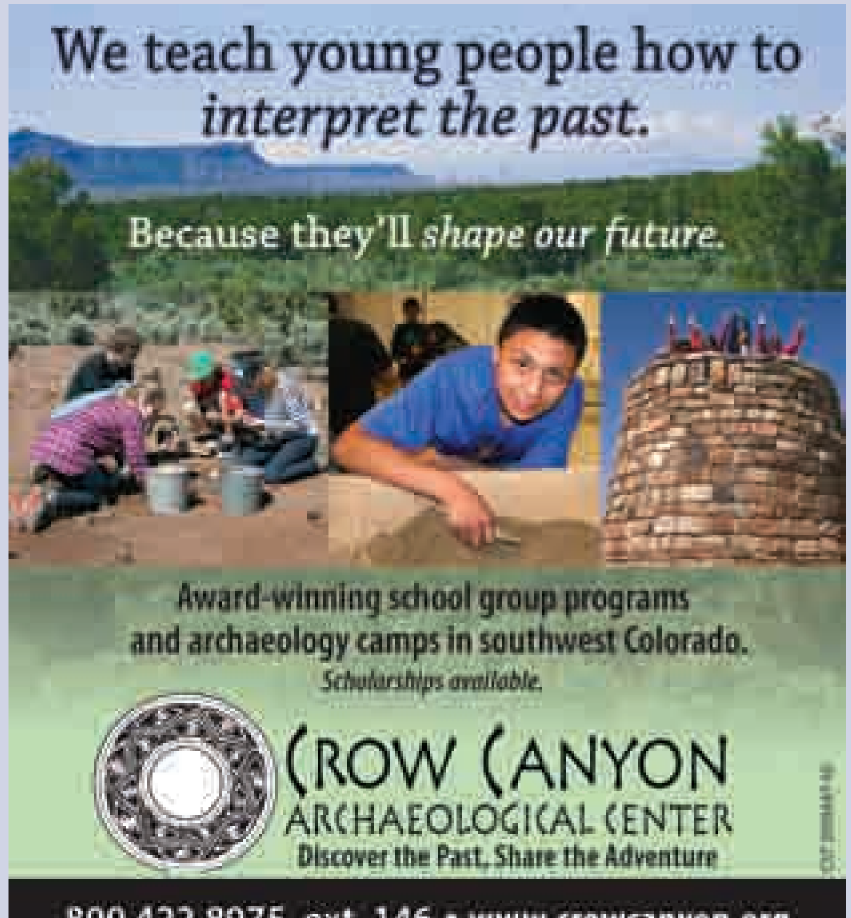

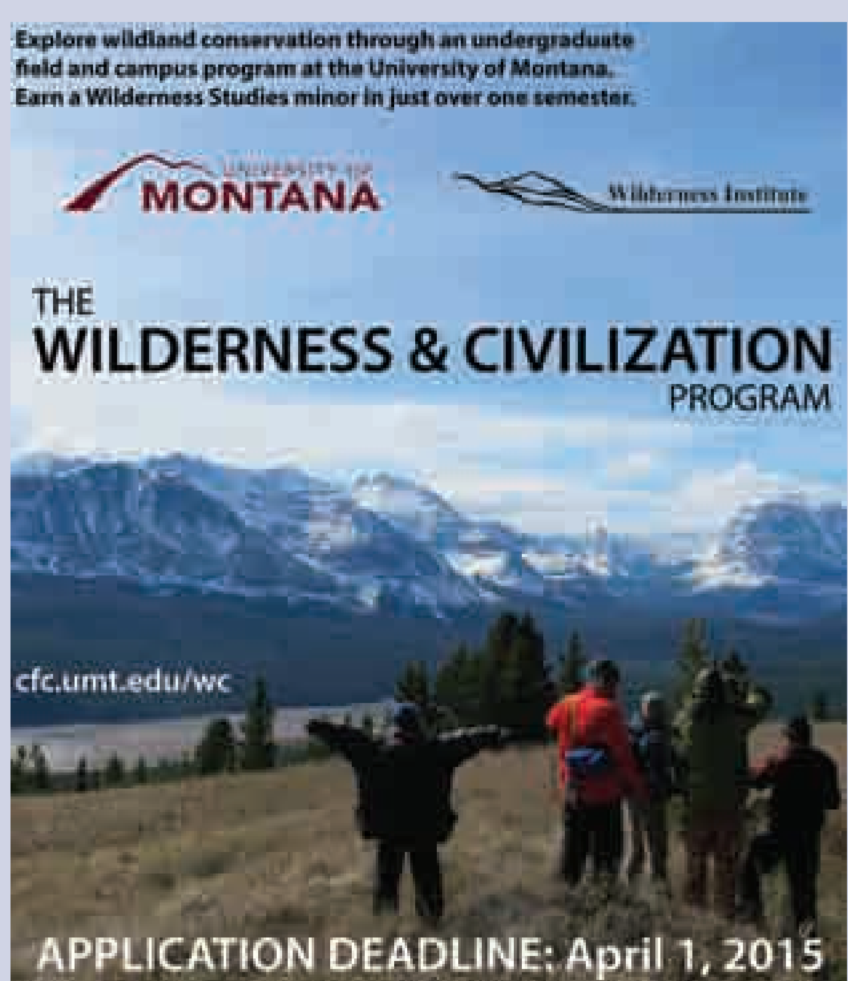

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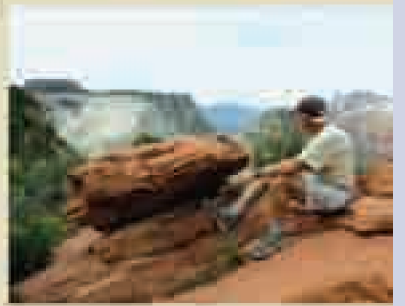

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ARIZONA

In order to prepare future scientists to conduct research and inform policy in an ethical manner, **Arizona State University**'s New College of Interdisciplinary Arts and Sciences (newcollege.asu.edu/mns/degrees/naturalsci) has designed a BS in environmental sciences which requires all students to enroll in environmental ethics and policy courses. The program prioritizes the "connectedness of disciplines" while encouraging students to take advantage of top-tier research facilities. Another perk? With the help of the Western Undergraduate Exchange (www.wiche.edu/wue), students from most Western states can attend for reduced tuition.

With an academic culture deeply rooted in both interdisciplinary and environmental studies, **Prescott College** (prescott.edu) offers fertile ground for would-be environmental philosophers. Courses include "Religious Ethics and Environmental Activism" and "The Idea of Nature." Students can enroll in the more traditional full-residency environmental studies program at the undergraduate level or can instead earn their self-directed undergraduate or graduate degrees through the school's unique limited-residency program. Why contemplate the future of nature and humanity in a fluorescent-lit classroom when you could do it while climbing a mountain, paddling a river or actively helping communities become more sustainable?

CALIFORNIA

Though **Santa Clara University** does not offer a degree in environmental philosophy, it does provide a wealth of resources for its undergraduate students through the Markkula Center for Applied Ethics (www.scu.edu/ethics/). The Center offers an environmental ethics fellowship to fund student projects that address the ethical implications of particular environmental challenges. Past projects have questioned the philosophical underpinnings of sustainability, solar power accessibility and agriculture, among other issues. The center also publishes articles, blogs and podcasts that address urgent challenges in applied ethics, including a 12-part short course on environmental ethics available for free online.

Students enrolled in The Bren School of Environmental Science & Management at the **University of California Santa Barbara** can earn an interdisciplinary doctorate or master's in environmental science and management (MESM). Students interested in ethics benefit from the program's affiliation with the campus-based Walter H. Capps Center for the Study of Ethics, Religion, and Public Life, which organizes internships and lectures. Other resources include the UC Center for the Environmental Implications of Nanotechnology and the Center for Energy and Environmental Economics.

The 2011 Prescott College winter wilderness orientation in the Grand Canyon. COURTESY PRESCOTT COLLEGE ARCHIVE

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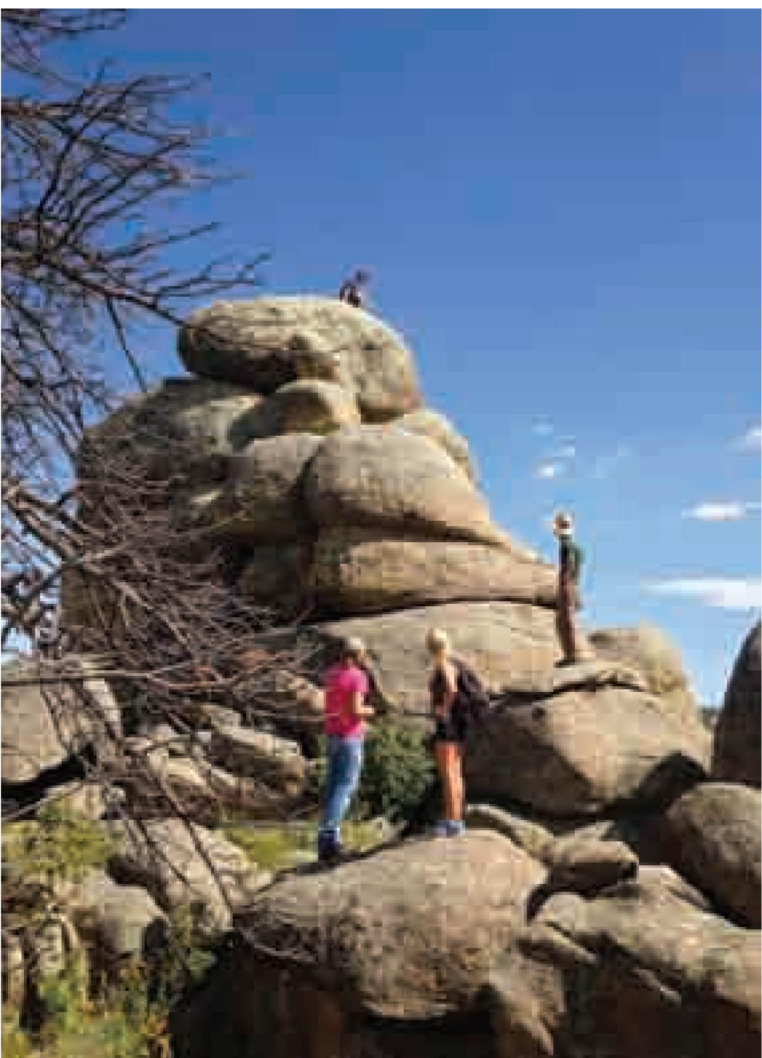
COLORADO

Colorado State University's Department of Philosophy (philosophy.colostate.edu) offers one of the West's oldest and most robust environmental philosophy programs. Undergraduate and graduate students can select from courses including bioethics and society, ethics of sustainability, and philosophy of natural sciences. Despite the abundance of offerings, student interest outpaces available seating: "I am dealing with emails from a dozen students right now who are trying to get into a course that is already full," says environmental philosophy professor Philip Cafaro. With its campus located in Fort Collins within sight of Rocky Mountain National Park, students are encouraged to engage with the land as well as the academic community. After reveling in the high country, they can "contextualize their euphoria" with full-time faculty member Katie McShane, whose past research includes finding the most effective ways to articulate a sense of wonder within larger environmental policy discussions.

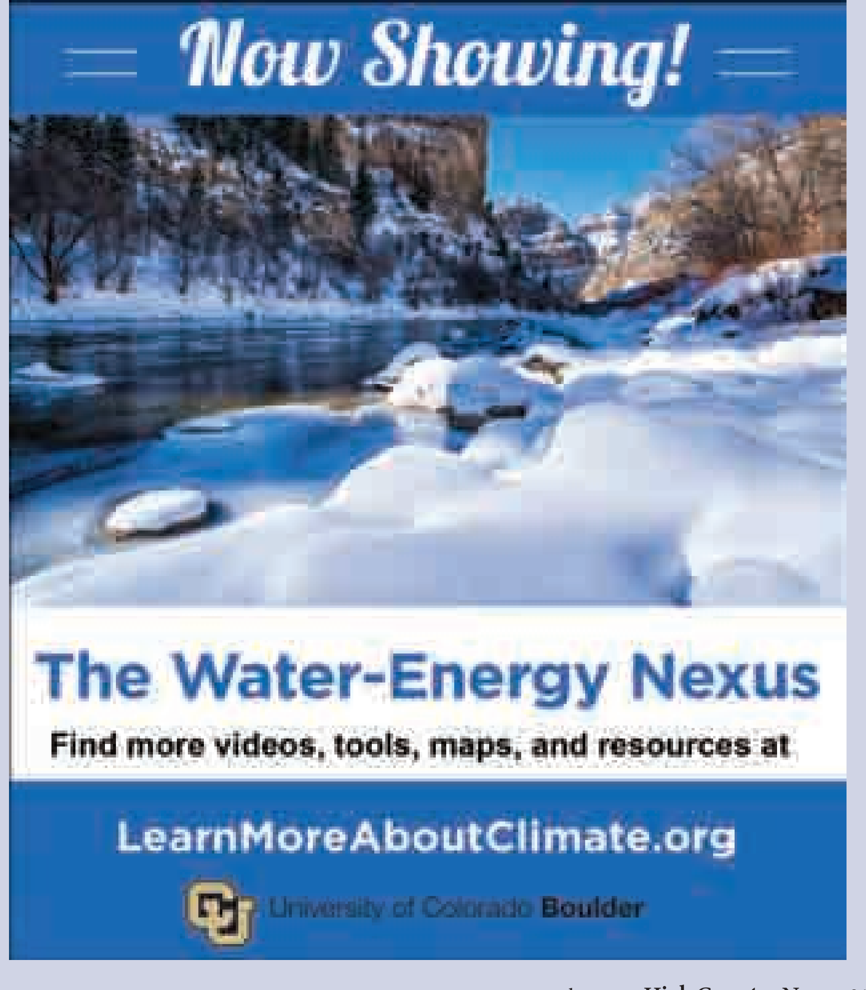
Also at the base of the Rocky Mountains, the **University of Colorado Boulder** offers multiple opportunities for students interested in environmental philosophy. The Philosophy Department, a leader in the field of applied ethics, offers a graduate certificate in environment, policy and society. Meanwhile, the Environmental Studies Department (colorado.edu/envs) provides students with master's or doctorate programs with an ethics-heavy "theory and values" concentration. No matter which program they choose, students stand to benefit from the close ties between the departments. The university also hosts the Center for Values and Social Policy (colorado.edu/philosophy/center), which supports research, organizes conferences and sponsors lectures on the relevant applications of ethics.



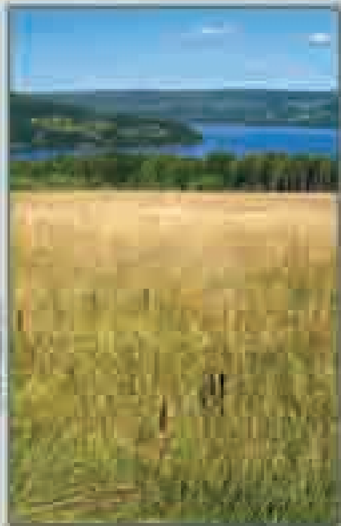
IDAHO

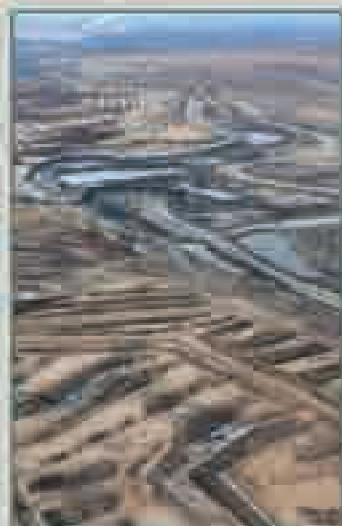
Scholars at the **University of Idaho** can earn a master's in environmental philosophy through the Philosophy Department (uidaho.edu/class/philosophy). Since 2013, the program has been home to a student-published ethics journal titled *The Hemlock Papers*. Students can also present their research at the annual Inland Northwest Philosophy Conference, organized this year by Boise State University and Washington State University.

CSU philosophy professor Philip Cafaro takes graduate students on a hike in the Red Feather Lakes area of the Roosevelt National Forest.
COURTESY PHILIP CAFARO



Call to reason





Which future do we choose?

The time is soon coming when men* will realize that the most important problem facing this generation is the ecological imbalance which threatens vast areas of Earth. As you know, men are divided as to the extent of this problem but unless their attention is squarely fixed on this ecological dilemma, the future for many is under question.

Soon many groups will realize the extent of this danger and that, year by year, little separates them from disaster. The forces unleashed by global warming are now well beyond the control devices available to men.

Hearken, therefore, while there is still a little time. For the waters rise inexorably, and men gamble, blithely, with their future.

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This article, published in *Share International* magazine, was written by a Master of Wisdom. The Masters – headed by Maitreya, the World Teacher – are highly advanced teachers and advisors of humanity who are planning to work openly in the world very soon.

*The word "men" is used here as a general term meaning humankind.

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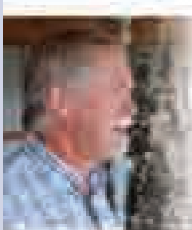

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MONTANA

It doesn't take long at the **University of Montana** to abandon the stereotype of philosophy students hiding out in the library. Missoula prides itself in being the closest urban center to any wilderness area in the United States – only a short drive to the largest contiguous wilderness area in the Lower 48. Don't want to take that much time away from your studies? Mountain bike trails leave directly from campus. The Philosophy Department (cas.umt.edu/phil) offers a master's in environmental philosophy along with coursework for undergraduates. The program requires students to carry out a three-credit internship with a local nonprofit. (Fortunately, Missoula boasts one of the highest per capita rates of nonprofits in the country.) The Environmental Studies Department (cas.umt.edu/evst) also offers a number of ethically oriented courses, including "Ethical Issues of Ecological Restoration" and "Greening of Religion."

OREGON

The **University of Oregon** prides itself on one of the strongest interdisciplinary environmental studies programs in the nation, with over 100 faculty members across a wide number of departments, so it is not surprising that it also possesses one of the strongest environmental philosophy programs as well. Doctoral candidates in the environmental sciences, studies and policy program (envs.uoregon.edu/graduate/doctoral) can choose philosophy as their focal department. The two departments also collaborate to produce the journal *Environmental Philosophy*, one of the premier peer-reviewed journals in the field. Coursework features historically marginalized ethical perspectives including deep ecology, ecofeminism and indigenous philosophy. The program also manages the environmental leadership program, which places its students in local nonprofits, businesses and governmental agencies.

Oregon State University's Department of Philosophy offers a master's in applied ethics with an emphasis in environmental philosophy. The program requires students to actively analyze and engage with ethical issues in the field, providing opportunities to do so through the Phronesis Lab for ethics research. For students with a more literary bent, the university also hosts the Spring Creek Project for Nature and the Written Word.

One of the only universities in the nation to offer a bachelor's in environmental ethics and policy, the **University of Portland** (college.up.edu/envscience) uses a Catholic theological framework that emphasizes social justice to address the underlying ethics of its academic offerings. Located in the famously progressive city of Portland, the university offers access to a wide variety of environmental nonprofit organizations. Steven Kolmes, chair of the Environmental Studies Department, says that students flock to environmental ethics courses, including next semester's "Ethics in Sustainable Food."

Students do research on grazed land as part of a class on "Ethical Issues in Restoration Monitoring" at the University of Montana.
COURTESY DANIEL SPENCER

University of Oregon students gather stories to promote stewardship of the McKenzie River, Eugene's only water source.
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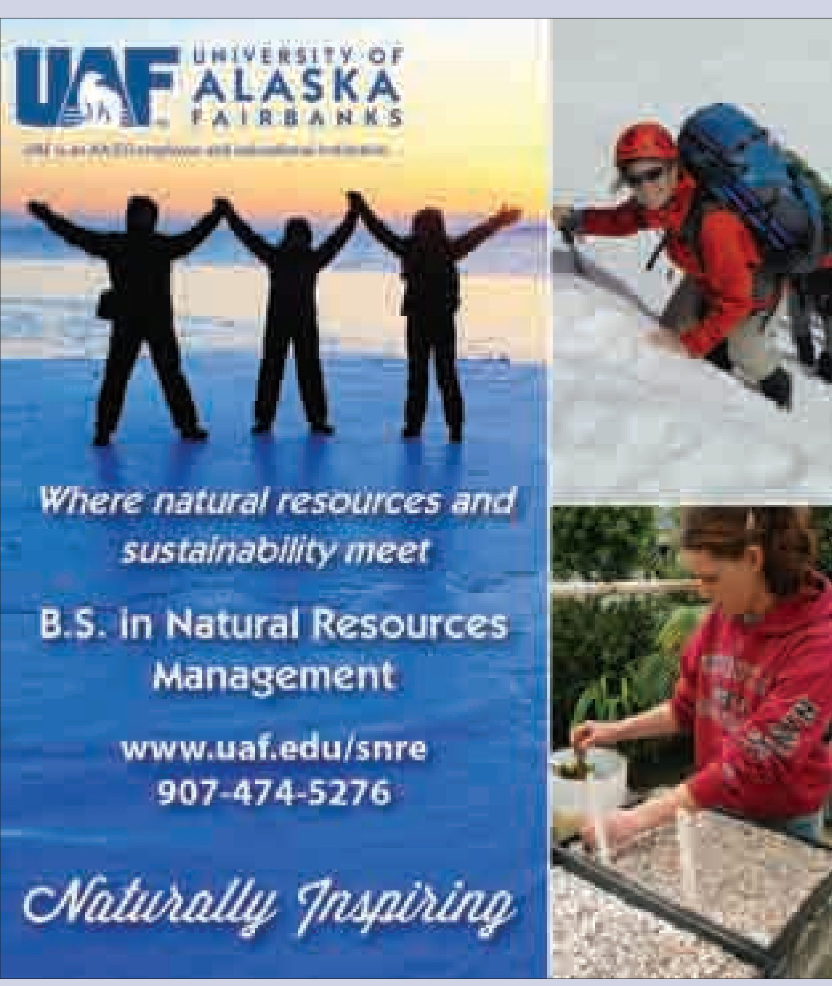

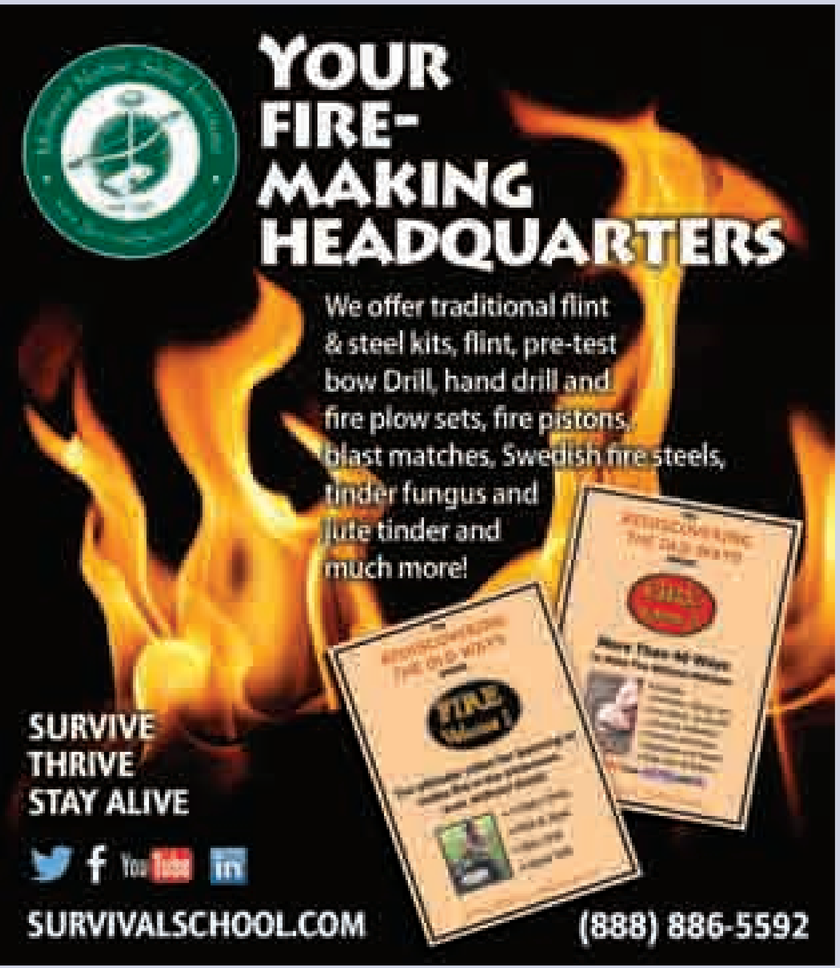

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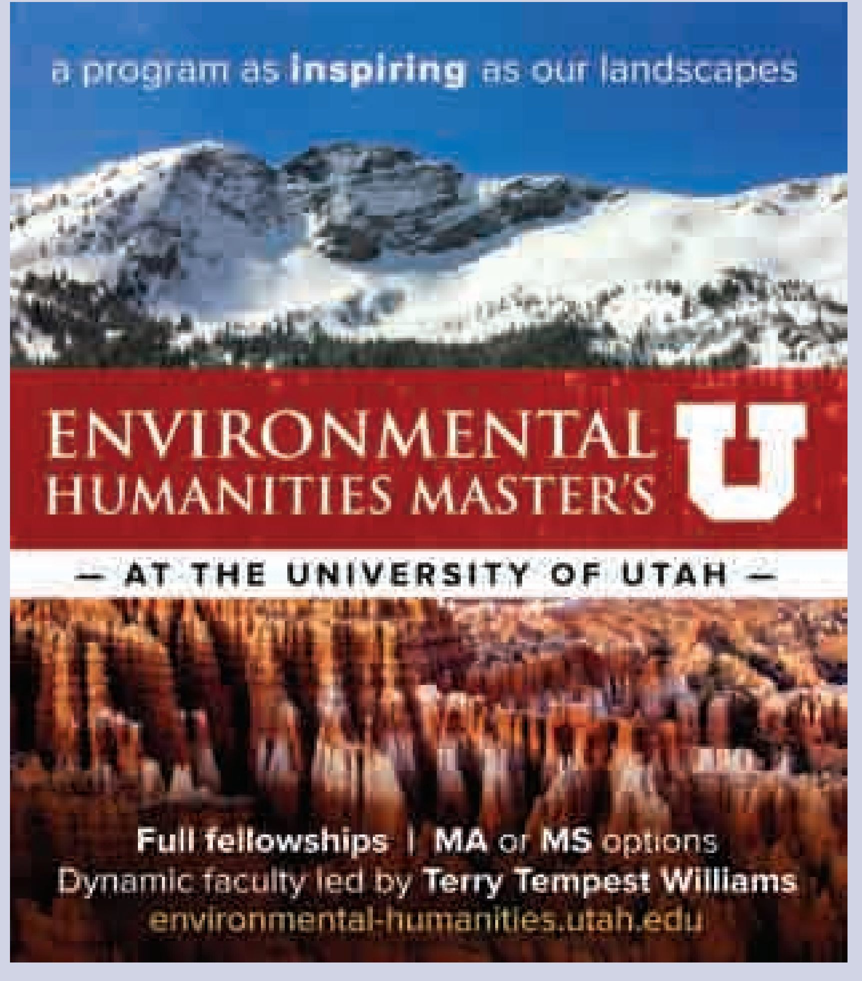

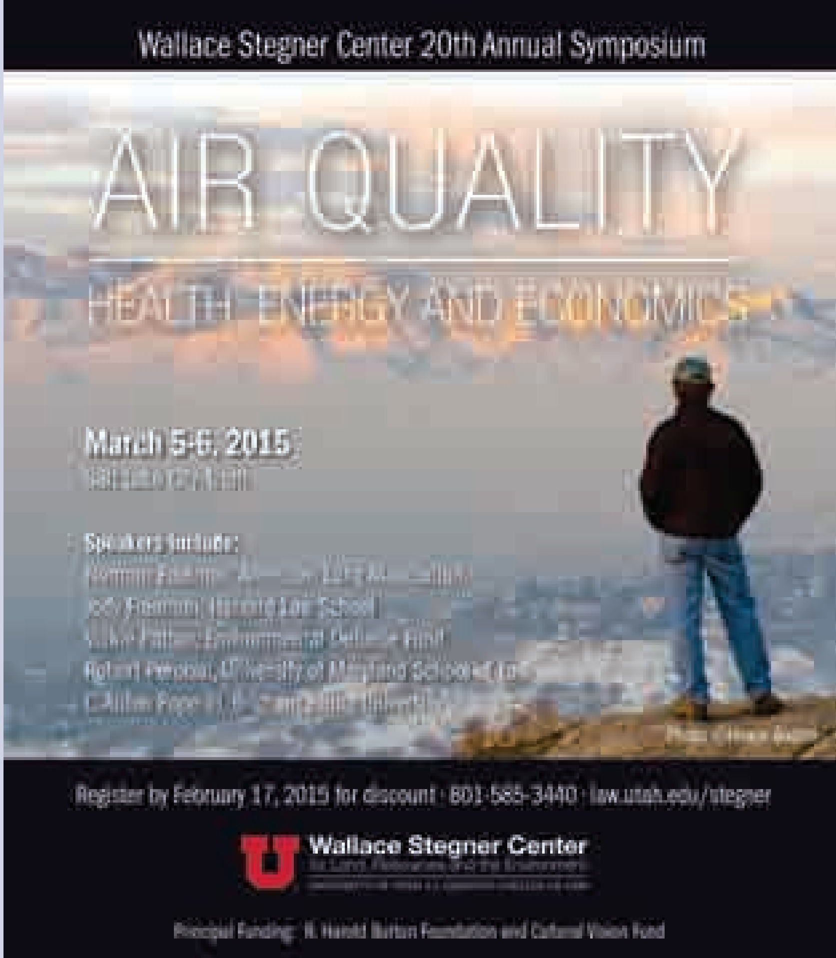

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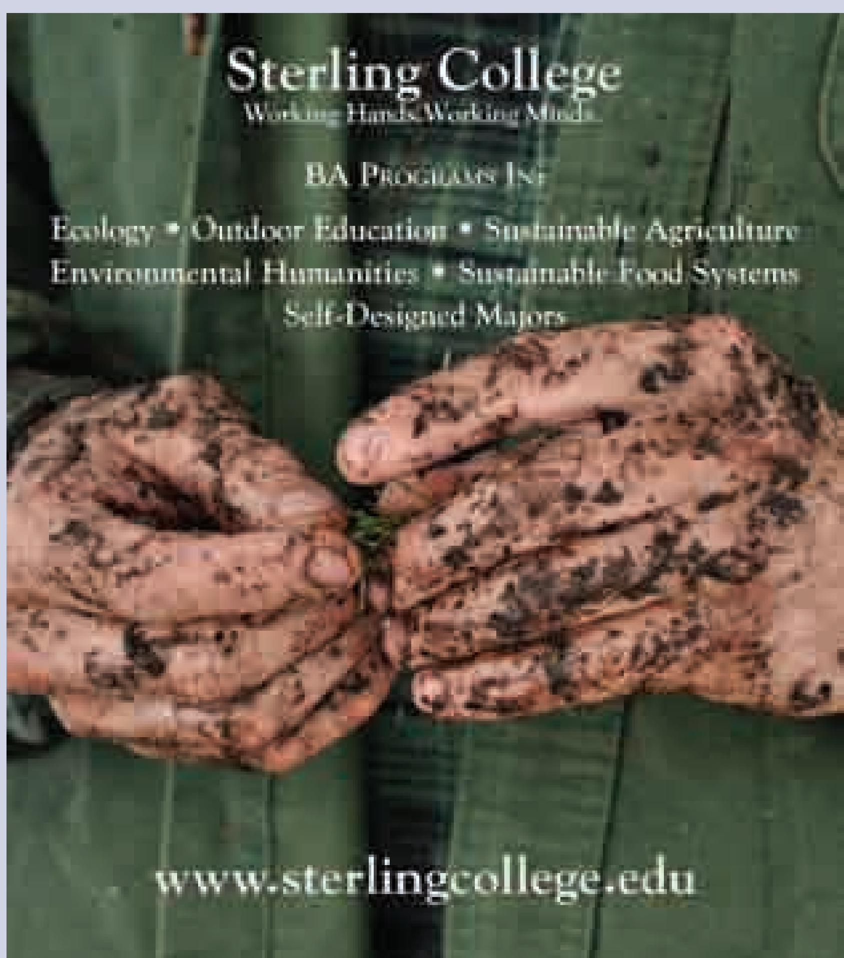

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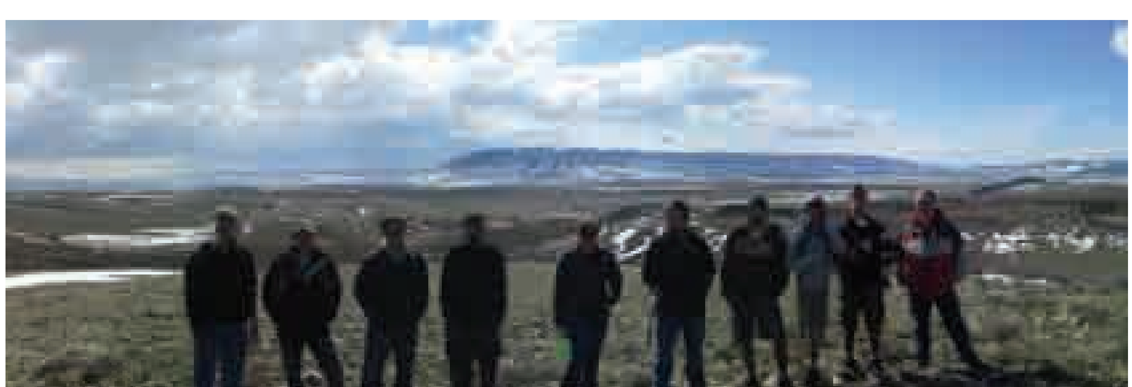
UTAH

Students seeking a master's of arts or science or a doctorate in philosophy and applied ethics can find plenty of opportunities at the **University of Utah** (philosophy.utah.edu/graduate). The program works closely with the College of Business, College of Law and School of Medicine to allow its students to pursue multiple degrees concurrently. It also offers a joint program with the Institute of Human Genetics, located on campus. With 19 full-time faculty (not all of them specializing in environmental ethics), the department boasts small class sizes and close interaction with instructors.

WYOMING

In order to serve undergraduates who are not majoring in philosophy but still want a strong foundation in environmental ethics, the **University of Wyoming** has created an environmental values minor. Faculty in the Philosophy Department (uwyo.edu/philosophy) see it as a way to provide "a vital link" between the humanities and the natural and social sciences. Coursework explores the "aesthetics, culture, ethics, and policy" associated with current environmentalism. The school's location in Laramie, population 30,000, allows students plenty of extracurricular opportunity to contemplate the aesthetics of the nearby Laramie Mountains.

Philosophy students from the University of Wyoming gather at Table in the Wilderness camp near Centennial, Wyoming, to study stoicism for the annual Stoic Camp. While the camp is not a lesson in environmental ethics, students get the opportunity to explore the outdoors while considering the relationship between themselves and nature. COURTESY DEPARTMENT OF PHILOSOPHY, UNIVERSITY OF WYOMING



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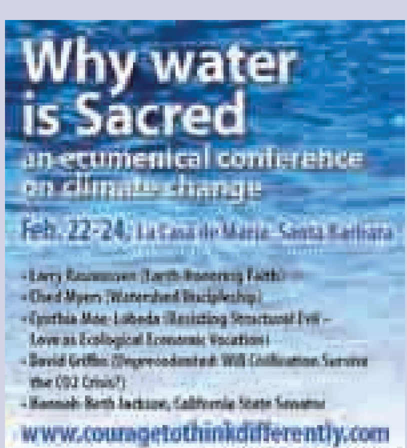
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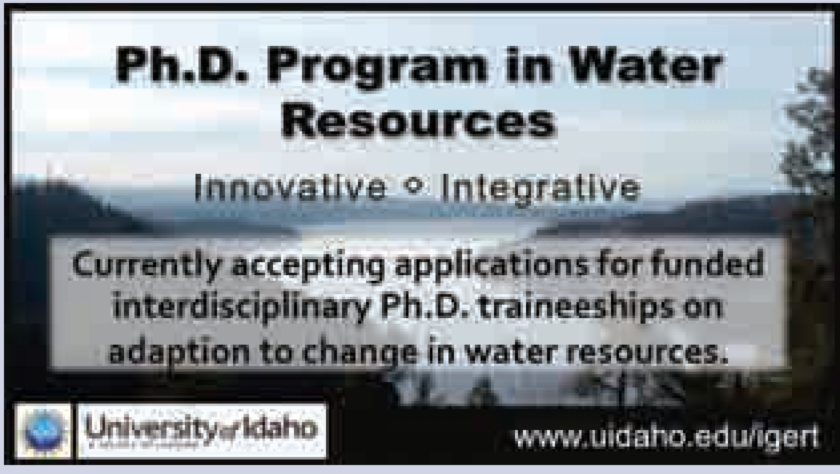
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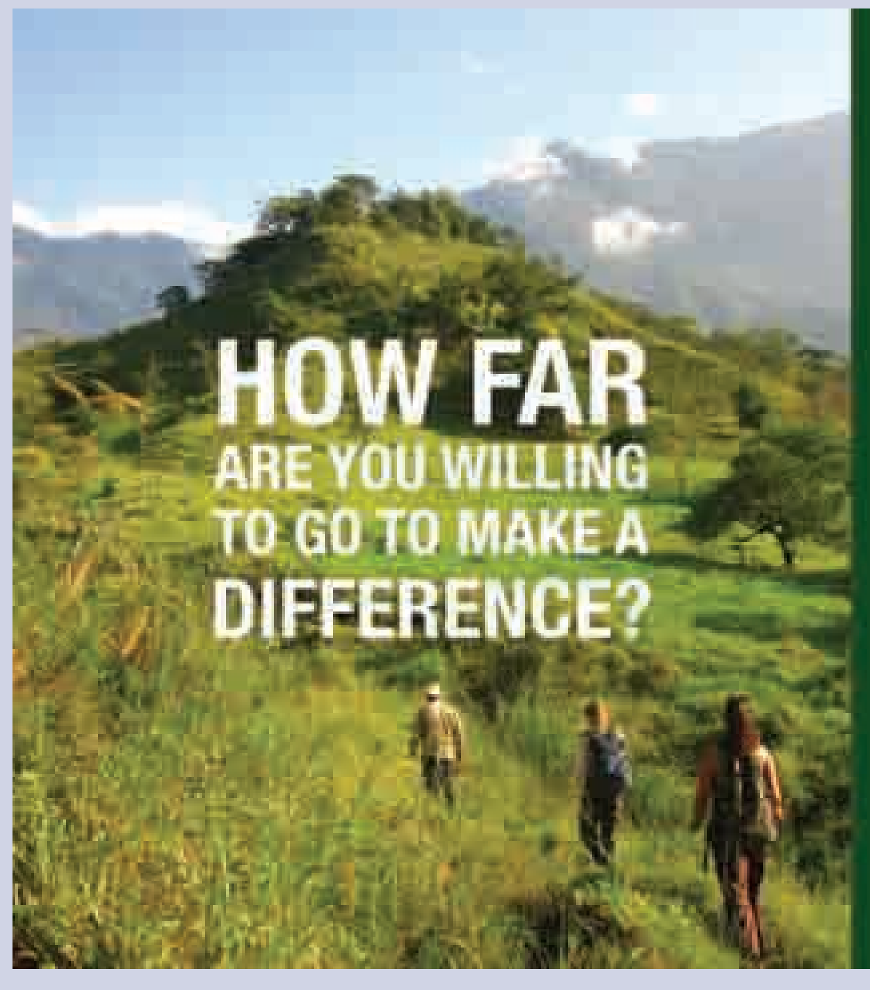
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BEYOND THE WEST

At the **University of Victoria**'s School of Environmental Studies (uvic.ca/socialsciences/environmental), located in beautiful Victoria, British Columbia, students seeking their bachelor's, master's or doctorate can choose from three interdisciplinary research areas: ethnoecology, ecological restoration or political ecology. Undergraduates can also minor in the human dimensions of climate change or conduct research through the intergovernmental Pacific Institute for Climate Solutions, which is hosted by the university.

The **University of Alaska Anchorage**'s Philosophy Department (uaa.alaska.edu/philosophy) has created a certificate in applied ethics for undergraduates interested in entering any number of professional career tracks while seeking working knowledge in ethics. Though the certificate program is not devoted solely to environmental concerns, in the course of their studies students can enroll in upper-level environmental ethics courses for engineering, business and law. With the long winter nights and sub-zero temperatures — and a campus shared by dozens of moose — students might be glad to spend hours contemplating the big questions inside the comforts of the gorgeous UAA/APU Consortium Library.

Even though the **University of North Texas** is located a few degrees east of the 100th meridian, its environmental philosophy offerings deserve a place in this list. The Department of Philosophy and Religion is home to the peer-reviewed journal *Environmental Ethics* as well as to the Center for Environmental Philosophy (cep.unt.edu), a nonprofit that provides a number of online resources for anyone interested in the field. Graduate students can earn a master's or doctorate in philosophy with a concentration in environmental ethics.

The **International Society for Environmental Ethics** (enviroethics.org) also provides online resources for students, faculty and the general public. Since 1990, the organization has facilitated discussions between environmental philosophers around the world. It also manages an online bibliography with over 16,000 entries.

Ready to tackle the big questions yourself? **The Center for Humans and Nature** (humansandnature.org) has created an online forum for scholars and armchair philosophers alike. Three times a year, the center poses a new "Question for a Resilient Future," in order to spark constructive public dialogue. Recent questions include: How far should we go to bring back lost species? Does hunting make us human? And what does the Earth ask from us?

There are many other environmental philosophy programs out there — too many to list. If you know of one that merits attention, tweet it to us **@highcountrynews**.

John Nolt, from the University of Tennessee, and Umberto Sconfienza, from Tilburg University, below, listen to a talk at the annual International Society for Environmental Ethics meeting. On a hike during the meeting, left, philosophers experience the wind and the earth like low-laying alpine plants.
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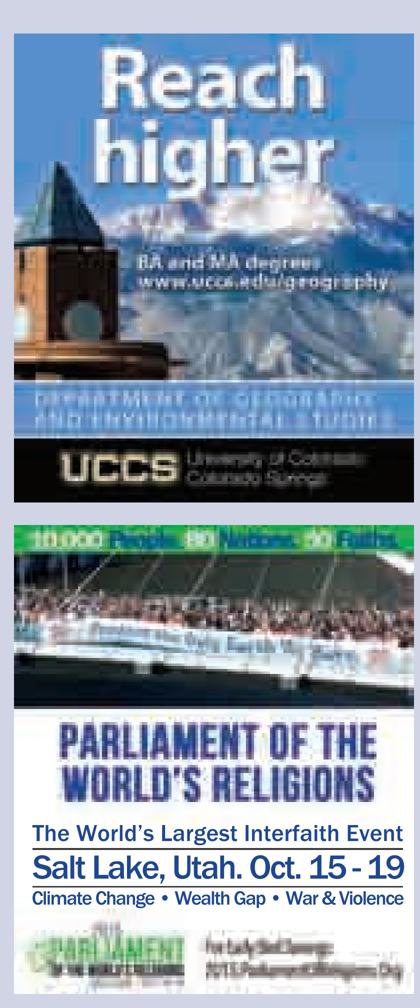

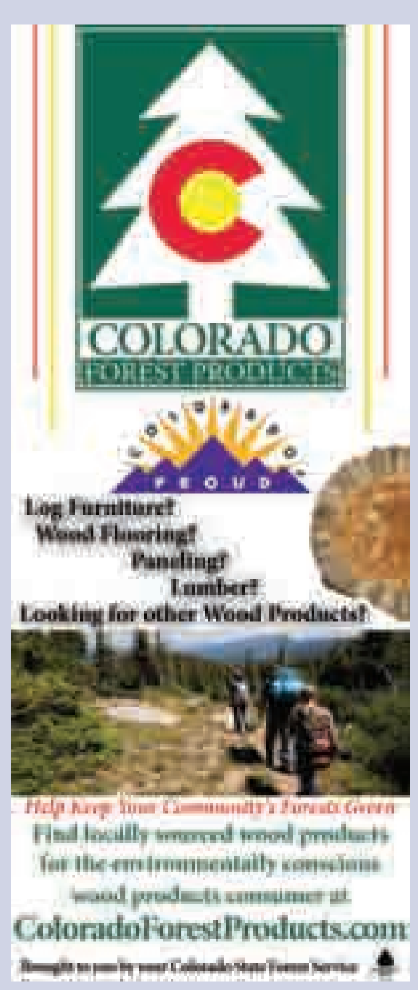

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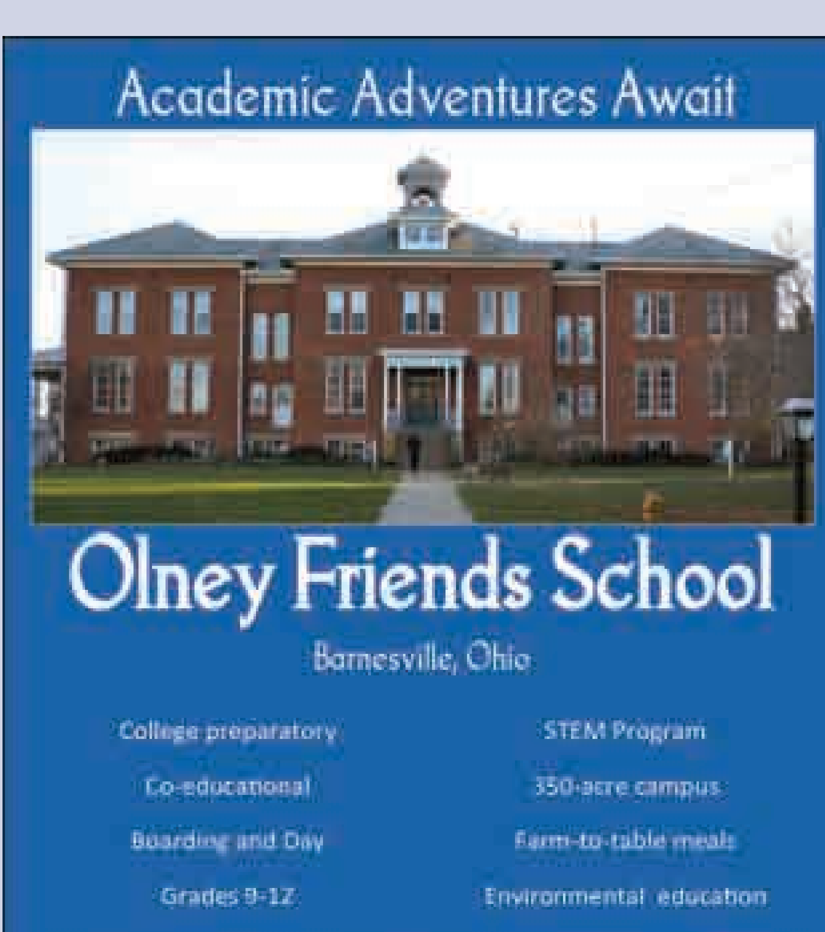

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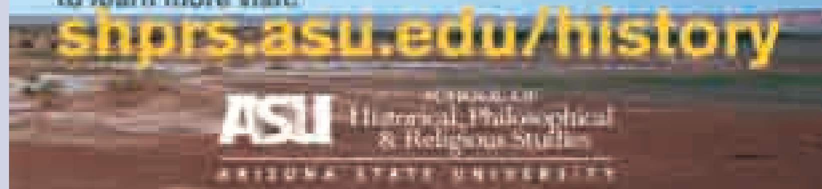

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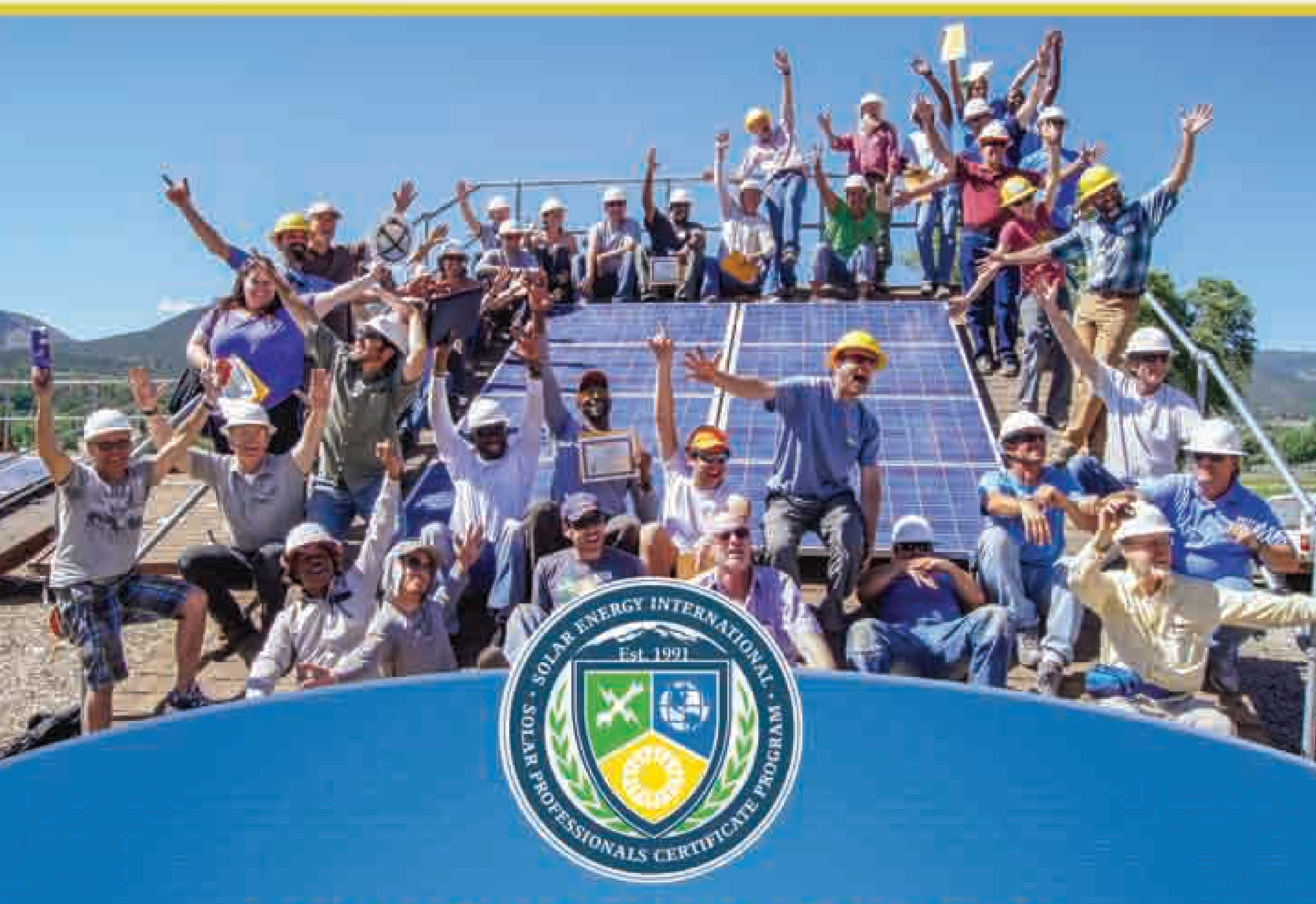

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The New, New West

Through the mountains and over the desert in the rocky and rugged American West, 200 years from now, a turkey vulture flies. Pink flaps of bald skin encircle her beady eyes; her crooked black feathers are slick with carrion grease. This weird bird could be considered the West's last surviving heroine. That is because she is a perfect mirror for her native landscape, which has become more harsh and depleted than ever.

Once, the powerful cities of Denver, Salt Lake and Phoenix held sway, surrounded by seemingly eternal miles of asphalt blah. Now, in the year 2215, these metropolises are empty, save for the tumbleweeds piled high against old chain-link fences and the walls of abandoned buildings.

For wild things like the turkey vulture, this withdrawal of a crumbling civilization should have felt like a victory. And it might have, had many creatures other than vultures survived long enough to see it happen. But the desert tortoise, the pronghorn and the big cats vanished long before the humans fled this region. Even the coyote, that resilient, versatile trickster of the animal kingdom, finally surrendered. And there can be no restoration of this part of the world now, for there is no water. The

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BY NATHANIEL KENNON PERKINS, 2014 BELL PRIZE WINNER

landscape reflects the decaying décor of the dusty rooms in the now-empty cities. It is a sun-blasted hell.

Not that there is no water at all: There is a little, but it is hoarded; the land is not allowed to use any of it. The few remaining springs and parched aquifers and the pathetic trickle of piss that was once the mighty Colorado River have long since been privatized. In 2215, there is only water enough for the water company employees themselves, with just enough left over to sell at an ultra-high premium to the fracking technicians who pull hazard pay just for venturing into the desert during hot daylight hours. The crews who film them for reality TV shows must import their own water, as must the heavily armed private security firms that watch over and guard the billion-dollar water and energy operations.

You could describe this scene as "post-apocalyptic," but the term has become embarrassingly outdated. By 2215, historians agree that the so-called apocalypse began hundreds of years earlier, sometime in the 20th century. This was back when corporations and politicians were still pouring money into convincing some of the more gullible citizens that there was no such thing as climate change and that the much-sought-after and heavily exploited natural resources were still abundant. By the time they realized that it was simpler, not to mention cheaper, to simply take what they wanted by force, even from their fellow citizens, the collapse had been underway for generations.

No, the post-apocalyptic era has come and gone: 2215 is in the middle of the Age of Endurance. And there are those who endure. Not in the Southwest, where such a feat would be impossible without a private army and a bankroll the size of Shiprock, but farther north, where some rain still falls. Every day there are more who dare to believe that the experiences of life should be richer than mere survival. Their goal remains distant, but they are working toward it with steadfast determination: by showing gratitude for the land that gives them life, by growing sustainable organic crops, by taking care not to overharvest the mushrooms and berries they forage from the forest, by abandoning cattle with their stinky beef and eating only the meat that comes from the deer and elk that they respectfully hunt or from the few salmon that they fish. They are healing by helping the Earth to heal. In 2215, things are finally starting to change.

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ESSAY BY SARAH GILMAN

Kaye Fissinger collects Don Quixote. I met the diminutive 70-year-old at her home in a quiet subdivision of Longmont, Colorado. Amid memorabilia from her work in musical theater, black-and-white portraits and an eye-popping snapshot of her body-builder daughter, the man of La Mancha stared from prints and paintings, posed in wooden statuettes and porcelain figurines.

"Why Quixote?" I asked.

She regarded me over gold-rimmed glasses, a smile quirking her mouth. "Because he tilts at windmills," she said.

In a way, so does Fissinger, but hers are the oil-drilling rigs that have popped up lately in her area. She looked computer-tired, clad in a white turtleneck, her hair pulled into a ponytail. She led me upstairs to a cluttered home office, cleared a stack of documents from a chair and urged me to sit. When she came here from L.A. in 2006, she explained, she was worried about the separation of church and state.

She didn't yet realize that the plains further to the northeast were pin-cushioned with tens of thousands of wells, many of them hydraulically fractured, or fracked — a process that involves firing water, sand and chemicals thousands of feet underground at incomprehensible pressures — or that the boom had intensified in recent years.

Then one day in 2011, an automated phone survey asked her an odd question: How would she feel if drilling took place on Longmont open space? "Radar, radar!" she exclaimed. A company, it turned out, had proposed drilling around a local reservoir. The more she learned, the more she worried. She thought of her great-grandkids. A lung cancer survivor, she thought of her respiratory health. She thought about the flat lot near her house that might be a perfect place for a rig.

And in 2012, she helped found the nonprofit Our Health, Our Future, Our Longmont, which spearheaded a ballot initiative that made the city the first in Colorado to ban fracking. The next fall, despite industry's expensive counter-campaign, several other Front Range communities followed suit. Places across the West and the country have also joined in, from rural Mora County, New Mexico, in 2013, to, most recently and significantly, the state of New York, which overlays a booming shale gas formation.

Though many bans face long odds in court — Longmont's and others have already been shot down and are headed for appeals — activists and local officials keep fighting. "We're in it for the long haul," Fissinger told me emphatically. "Fracking is a toxic, extreme energy extraction method. I don't think it *can* be made safe."

The prospect of a drill rig towering over one's home would terrify just about anyone, me included. But I still felt conflicted: A near-term transition from oil and gas is profoundly unlikely. Natural gas is slowly supplanting coal as a primary electricity-generating fuel. Petroleum runs our planes, trains and automobiles. Both make it into a dizzying array of plastics and personal care products.

The corporate machine of hydrocarbon development contains a ghost. And the ghost in that machine is us. Until that changes, every fracking ban — Longmont's, Mora County's, New York's — no matter how heroic and justified, simply pushes drilling somewhere else. I wanted to know: Where are we saying *yes* to such development, and how can we say it in a way that lessens impacts on landscapes and people?

I had one hunch. To see if it bore out, I rented a red Chevy Cruze, filled the tank, and got behind the wheel. "Remaining Oil Life: 97%" blinked on the dash. *How appropriate*, I thought, and drove west, toward Energy Country.

I WASN'T THE ONLY LONE DRIVER headed into the mountains on I-70; hundreds of us sped along in Subarus, Tacomas and other sporty rigs — Colorado cockroaches, we call them — likely bound for the outdoor meccas around the Continental Divide. But once the resort bedroom community of Glenwood Springs was in my rearview, traffic thinned. The tiny Cruze wobbled in the wake of scattered semis ferrying goods. Compressor stations and natural gas well pads lined the roadsides. Not far west of the Colorado-Utah line, I pulled off at the exit for Danish Flat. There, amid eerie silence, was a vast complex of plastic-lined ponds: The final resting place for the waste from the drilling operations I had passed in western Colorado.

In their 2003 report, *What Every Westerner Should Know About Energy,* historian Patty Limerick and her colleagues observe that there seems to be nowhere left to put energy infrastructure without a fight. "We have run out," they wrote, "of unloved and unlovely places." Clearly they weren't talking about this spot, I thought, peering across the chain-link fence at the stagnant water and plugging my nose.

To the northwest, exploding from the flat expanse of weed-scattered earth, the Book Cliffs looked like a better example of a lovely, loved place. Beyond their rims stretch great swaths of unbroken piñon-

ZONE

juniper forest that eventually give way to sun-etched canyons pouring into the Green River where it wends through Desolation and Gray canyons. About 6,000 boaters annually ply an 84-mile stretch of whitewater through their remote depths. For years, the hardline Southern Utah Wilderness Alliance, based in Salt Lake City, has fought development that threatened these and millions of other acres of wilderness-quality land.

And yet, in 2010, SUWA essentially said yes to hundreds of gas wells that a company called Bill Barrett Corp. had proposed on the West Tavaputs Plateau not far west of Desolation Canyon. By doing so, SUWA wasn't caving. It was allowing inevitable development to go forward in a way that was least harmful to landscapes it wanted to protect. It was also making a sort of tradeoff.

On a sunny October day, I hitched a ride to the top of the plateau with Bureau of Land Management Price Field Office Manager Ahmed Mohsen to see what SUWA got in return. "Isn't this pretty?" Mohsen said as we gazed from one of the field's well pads on a finger of mesa top into a red-rock fissure called Jack Canyon. A wilderness study area, it feeds into the much larger Desolation Canyon wil-

Bill Barrett Corp. agreed not to drill wilderness-quality lands in and around Utah's Desolation Canyon, top, in exchange for the Southern Utah Wilderness Alliance's agreement not to sue over hundreds of gas wells the company planned to drill nearby and farther west, including these in the Nine Mile Canyon area, above. ECOFLIGHT

derness study area that encloses a stretch of the river's west flank. The promontory we stood on was part of Horse Bench, an unroaded sagebrush mesa sweeping to the northeast, backed by a pastel layer cake of buttes. On a primitive road at the field's edge, I found black bear tracks threaded along the tire marks of an oilfield services pickup.

Bill Barrett had legal right to drill in all three places, and had proposed nearly 240 wellpads there. But it relinquished plans for all but a half-dozen of those, sparing some 65,000 acres of wilderness quality land, in exchange for SUWA's agreement not to sue to delay the entire project, most of which sprawls farther from the canyon to the west. The cluster of remaining wellpads that Mohsen showed me that day were near historic wellpads that the company has since reoccupied, and their infrastructure was set out of sight below ground, with seasonal restrictions on drilling to avoid disturbing boaters. Jarring as the naked scrapes of earth were, they clearly beat the alternative.

> "If you want a sacrifice zone, move it to Boulder. Let's have big money fight big money and see who comes out the winner."
>
> –Herm Hoops, Jensen, Utah, resident

The deal — the largest of a handful of similar compromises SUWA has since made — seemed like a win-win from here. It also openly made the judgment implied in every fracking ban: Some places are more valuable than others. "Part of the thinking was to push development back to stay next to existing development, and that way limit new roads, new intrusions, new infrastructure," SUWA attorney David Garbett had told me earlier. Because the group's focus is on wilderness protection, from its perspective, "once oil and gas is a use in an area, it's the dominant use. It's already a sacrifice zone."

That's not an unusual sentiment among conservationists working on oil and gas issues, particularly in politically conservative states: With limited resources, many opt for triage, focusing on protecting superlatively beautiful places or intact islands of important wildlife habitat — just as the Fissingers of the world work to protect their communities — while actively or tacitly accepting development in other places. That same compass of reasoning suggested I might find what I had come for in the gray area between the two, in places already drilled enough that more could be tolerated. And it pointed due north from West Tavaputs, to the massive oil and gas fields at the heart of the Uinta Basin.

As I pulled down the main drag toward my hotel in Vernal, Utah, a sign for a juice bar and camo seat-cover shop popped into view: "I ♥ DRILLING."

Perhaps, I thought, "tolerated" is the wrong word.

ON A CHILLY NIGHT the weekend before Halloween, I visited the Pumpkin Festival in Jensen, southeast of Vernal. Hundreds of young families — many pregnant or toting infants or both — milled around a circuit of jack-o-lantern dioramas and a giant pallet fire while an old-time band strummed sweet-sounding harmonies. I felt on edge as I lined up for a cheeseburger: Could they tell I hailed from Boulder, Colorado, an epicenter of anti-fracking sentiment? I had heard stories of public meetings here where the mere suggestion of limiting drilling incited virtual riots. But a teenage girl in a Nirvana T-shirt, with ratted hair and a face painted like a sugar skull, offered me a shy smile along with my food.

I sat down at a picnic table next to a woman named Ellen Mecham, who pointed out her father picking a guitar at the far end of the bandstand. She wore dark eye makeup and her hair in stiff black spikes and bounced a fussy granddaughter in her lap. She grew up in the nearby town of Gusher, she told me: "Lots of time outside, not much TV." All three of her brothers work in the oil fields; her mother, sitting across from her, also counted a son-in-law. Nearly everyone I spoke to said the same: Multiple members, multiple generations. Hydrocarbons run deep here: in the ground and in the blood of the people.

Below our feet stretched the same geologic treasure trove that contains West Tavaputs' gas. The Uinta Basin has tar sands, oil shale, even obsidian-esque gilsonite, used in inks and drilling fluids. Natural gas and oil have been produced here for decades. The bulk of that development — more than 10,000 active wells — is concentrated several miles southwest of Jensen and Vernal in the central part of the basin, in an area informally called The Fairway. What's another 1,000, even 10,000, wells in a place like that?

That Saturday, Mike Stiewig, who oversees much of the development as BLM's Vernal Field Office manager, drove me through The Fairway's west side. I could see what SUWA's Garbett meant: A web of connecting roads and dozens of densely spaced pumpjacks, tanks and wellpads stretched to the horizon across dun-colored grass, amid plumes of dust kicked up by service trucks. Each pumpjack's engine blatted with backfires, accumulating into a low frequency thrum like a swarm of approaching bees. Whatever might have been lost here looked like it was already long gone.

Stiewig showed me the Monument Butte field, where one company hopes to drill over 5,000 new wells, more than half likely from the wellpads of thousands it already operates. It's basically infill, like when new homes and businesses are built within a dense urban core instead of leapfrogging across old farmland as far-flung suburbs. "The appearance wouldn't really change much," Stiewig explained, except for one thing: "It would pretty much just be lonely pumpjacks. All those tanks would go away." Instead of being stored on individual well pads, oil and other fluids would be pumped through bundles of black piping to giant centralized plants where off-gassing chemicals are much easier to contain. These thousands of individual, widely scattered tanks are, it turns out, a major source of air pollution, as are the trucks required to service them.

If all the companies developing here adopted similarly stringent controls, as they increasingly must under Utah's and the U.S. Environmental Protection Agency's tightening air quality rules, then perhaps the basin really can sustain the more than 25,000 new wells projected in the coming decades. I tried to picture their sprawl: the perfect place to drill, colonized to the max. But the scale was so mind-bogglingly vast that I couldn't help but doubt the premise of my trip.

The fact that controls like those in Monument Butte even exist in such a rural part of Utah is evidence that development is already hitting some very real limits. When wintertime inversions seal oilpatch pollutants into the valley like a giant Tupperware lid, ozone levels here spike well beyond federal limits designed to protect human health. The gas can harm healthy lungs and exacerbate existing respiratory problems. Some of the primary chemicals that contribute to its formation, called volatile organic compounds — including benzene, a potent carcinogen — also collect in the valley's communities at high-enough concentrations to warrant further scrutiny. But thanks in part to a lack of year-round monitoring and comprehensive studies, the health risks they pose remain mysterious. It leaves some residents wondering, especially given reports of birth defects,

increased infant mortality and other weird health problems near drilling sites here and elsewhere.

The day before I left the Uinta Basin, I went back to Jensen to visit a curmudgeonly river rat named Herm Hoops. Oar blades engraved with the names of the rapids that broke them from their shafts decorated his garage; rare books on historic river expeditions shared shelf space with volumes by Mary Oliver and Ellen Meloy in his living room. Stocky and boisterous with a full beard, Hoops regaled me with tales of many trips down Desolation, including one that involved hiking dozens of miles overland back to civilization after getting stuck in an ice jam early in the year.

"There are nights when we can't sleep with the windows open," Hoops told me. Hydrogen sulfide gas pools around the house, pouring in from an old oil field and complex of waste evaporation ponds down the road. He gave me directions to see more; there are about 160 such ponds in the basin, each adding its own chemical vapors to the hazy air. A bitter cold west wind kicked up while we spoke; when I stepped out the door, the smell of rotten eggs slammed me in the face. I headed south, then southwest, descending through scrub-topped benches and knobs of painted earth, all of it dotted with gas wells. In the distance beyond, the Green River carved toward Desolation. From here, the land between looked no less lovely, no less worthy of protection. "There's enough drilling here," Hoops had told me. "If you want a sacrifice zone, move it to Boulder. Let's have big money fight big money and see who comes out the winner."

AND SO IT WAS THAT MY QUEST led me back home. As I drove down I-25 toward Longmont and Boulder, ranchland and sporadic cornfields gave way to new subdivisions, and soon enough, the giant scaffolds of drill rigs came into view, towering over car dealerships, strip malls and houses, with the massive pyramidal bulk of Long's Peak looming to the west on the Front Range skyline. I looked at the dash: "Remaining Oil Life: 74%." Perhaps Hoops was right, I thought. If we're worried about peoples' health and welfare, and if we truly value the wilder parts of the world, then our wealthy and bustling suburbs and cities are *exactly* where we should be drilling. Not because anyone deserves the accompanying nightmares, but because no one does.

Drilling was going strong in the West's rural oil and gas basins long before fractivists like Fissinger began fighting, long before fracking was a household word. But companies have figured out how to develop much more of our energy domestically, tapping giant, once-marginal reserves and drilling more wells at a faster pace to maintain production. As drilling has reached more densely populated areas in the West, or rural areas not far from places like New York City, oil and gas development has at last begun grabbing regular national media coverage. And vastly more people have been forced to directly confront the costs of something they've always used freely.

That awareness is already having an impact, inspiring reams of new research into how development affects air, groundwater, health, economies and more. It's helped spur both federal and state governments to begin reining in an industry that had long enjoyed a regulatory carte blanche. Colorado, arguably the Western focus of this clash, is widely regarded as a leader, though its rules are hardly perfect. Over the past several years, the state has moved to better protect wildlife, force disclosure of jealously guarded fracking fluid chemicals, increase setbacks from homes, and require companies to test nearby groundwater before and after drilling. Most notably, last winter it passed strict industry air pollution controls that are the first in the nation that aim to curtail releases of methane, the primary component of natural gas that also happens to be a potent greenhouse gas.

"It's sort of like in forestry," Pete Morton, a Boulder-based economist with the Conservation Economics Institute who served with The Wilderness Society for 18 years, told me over breakfast at Hotel Boulderado. The sound of jazzy music and clinking flatware wafted over the mostly empty tables as a hard rain fell outside. "They used to put in the beauty strip to hide the clear-cut. What we've done is cut down the beauty strip on oil and gas. Now we have all these eyes on industry." And some companies are clearly paying attention. When Colorado officials rolled out those new air measures, they did so alongside representatives from three of the state's major operators, Noble Energy, Anadarko Petroleum and Encana, which worked collaboratively with the pragmatic environmental group Environmental Defense Fund and the state to help develop the proposal.

More significant, though, is what this new awareness may do to galvanize action around the root cause of the problem: our own energy use. As Patty Limerick told me before I embarked on my journey, those same suburbs railing against drilling were enabled by the availability of cheap gasoline. "We live," Limerick said, "in the era of improbable comfort made possible by a taken-for-granted but truly astonishing infrastructure. Now that we have peoples' atten-

Well pads dot the landscape in Utah's Uinta Basin, above left. George Burnett, owner of Covers & Camo in Vernal, holds a sign outside in support of the oil boom that has made Vernal the nation's sixth-fastest-growing "micropolitan area" of 10,000 to 50,000 people.

MICHAEL COLLIER, ABOVE LEFT; AP PHOTO/THE SALT LAKE TRIBUNE, FRANCISCO KJOLSETH, ABOVE

> "They used to put in the beauty strip to hide the clear-cut. What we've done is cut down the beauty strip on oil and gas. Now we have all these eyes on industry."
>
> *—Pete Morton, Boulder-based economist with the Conservation Economics Institute*

tion, maybe this production-consumption thing can get thought about."

There are signs that this is beginning to happen on a scale that transcends a few solar homes and plug-in vehicles, Morton told me. Liberal Boulder, often dismissed as the ultimate Not-In-My-Back-Yard community, is trying to become its own electrical utility in order to reshape its power supply around renewable sources balanced by natural gas. As part of that effort, a working group that includes Morton is looking at how the city might use its buying power to influence the way that gas is extracted by adopting environmental certification standards not unlike those developed for the sustainable timber industry. Someday, Boulder might replace natural gas entirely with biogas, generated perhaps by excess manure from Greeley, a former cowtown ironically positioned in the midst of Colorado's oil boom.

Little of this comforts fractivists like Fissinger, who worry that regulations are a cynical political ploy that will only encourage people to embrace a dangerous and inherently unsustainable status quo. And indeed, whatever you believe about the risks of fracking and horizontal drilling, the techniques have ensured that scarcity won't be the crisis that weans us off hydrocarbons in time to avert the worst effects of climate change. No matter how completely we might mitigate drilling's local impacts, no matter how carefully we protect special places, near or far, oil and gas developments ultimate externality, global climate change, still looms.

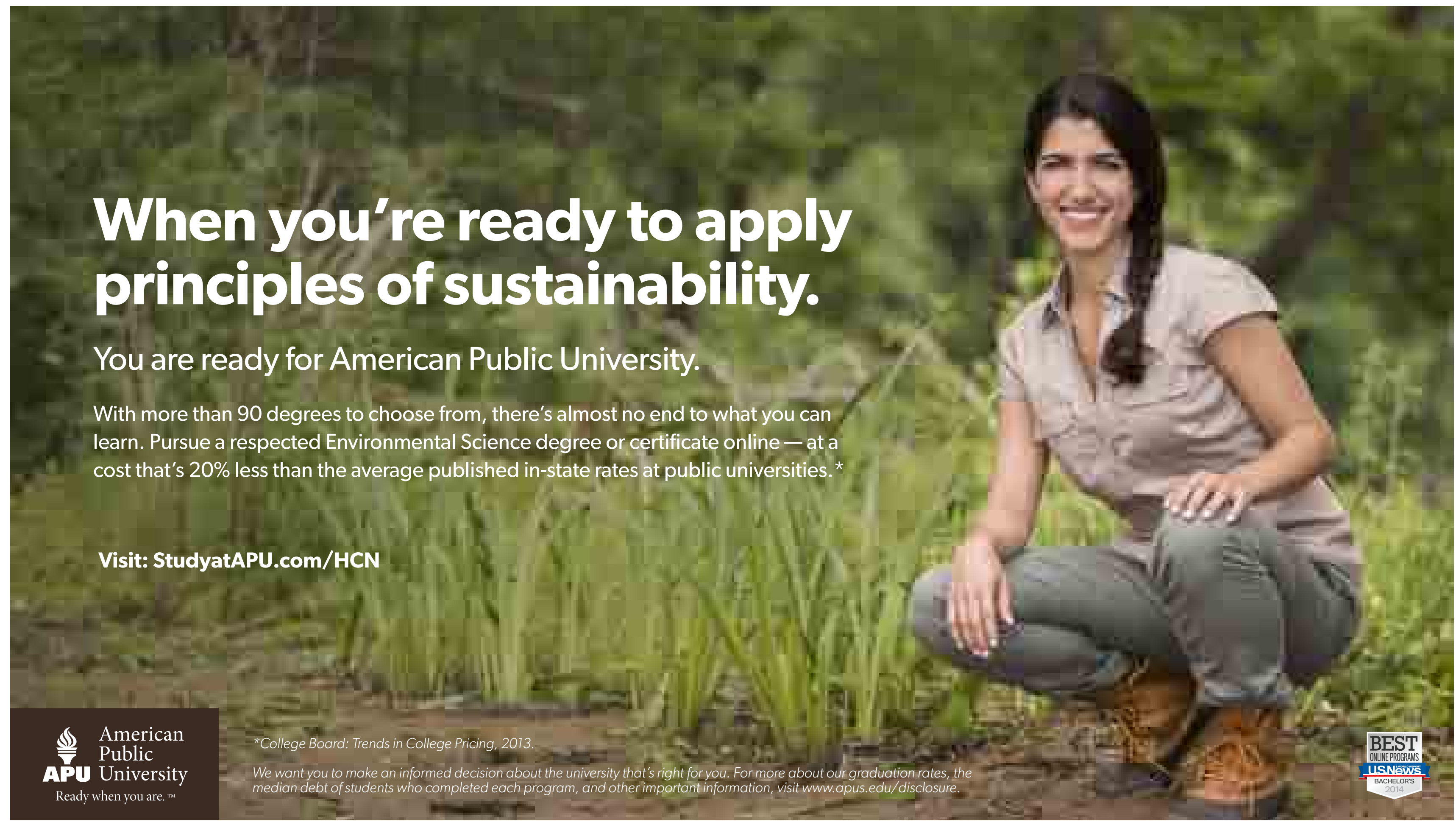
It's a conundrum that demands the "ideal future" that Yi-Fu Tuan envisioned in *Topophilia*, his seminal 1974 work on cultural geography. A future wherein we give our deepest loyalties to home — the place we love beyond all others, Tuan writes, the shelter of memory and family — and "at the other end of the scale, to the whole earth."

And therein lies the true power of the hardliners' "no." "The reality is that we're not going to flip a switch tomorrow and everything's OK," acknowledged Jeremy Nichols of the environmental group WildEarth Guardians, which hopes to leverage anti-fracking energy to influence public-land battles over oil and gas in the absence of higher-level climate policy. "But I don't want to say, '(development) is OK here.' Some of it is going to happen whether I say yes or not. If no one points out the costs or says no, there's really not going to be incentive for anyone to develop something different. Crisis fuels innovation and invention and creates opportunities." In other words, "no" can squeeze us toward an acceptable "yes." And expanding development is giving us a bigger, more widespread NO than, perhaps, we've ever heard before — a "no" that seems to hint at genuine change.

With the rise of fractivism, "you have people who were never involved in these issues before, and they're moving the goal posts 200 yards down the field," Morton said as he polished off his eggs benedict. "I think it's the rebirth of the environmental movement."

ON A CLEAR NOVEMBER SATURDAY, Vic's Coffee in north Boulder buzzed with hip 20- and 30-somethings grabbing late-morning lattes and pastries. Petroleum geologist Matt Silverman, a fit 61 years old with salt-and-pepper hair and a tidy mustache, blended in surprisingly well, lounging on the sunny patio. He led me to his SUV, apologized as he moved some yoga equipment, then ushered me into the front seat.

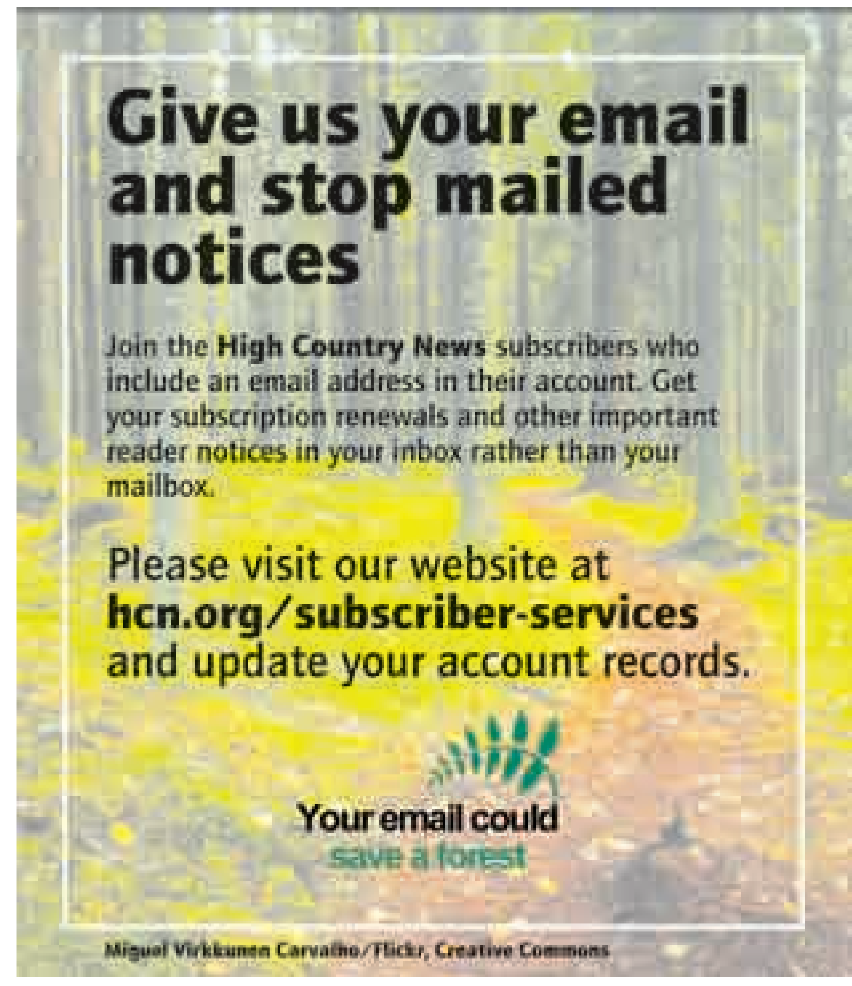
A little ways northeast of town, we pulled off the road at a barbed-wire fence. Beyond it, at the center of a wedge-shaped plot of rib-high grass with a clear view of Boulder's iconic Flatirons, was an ancient-

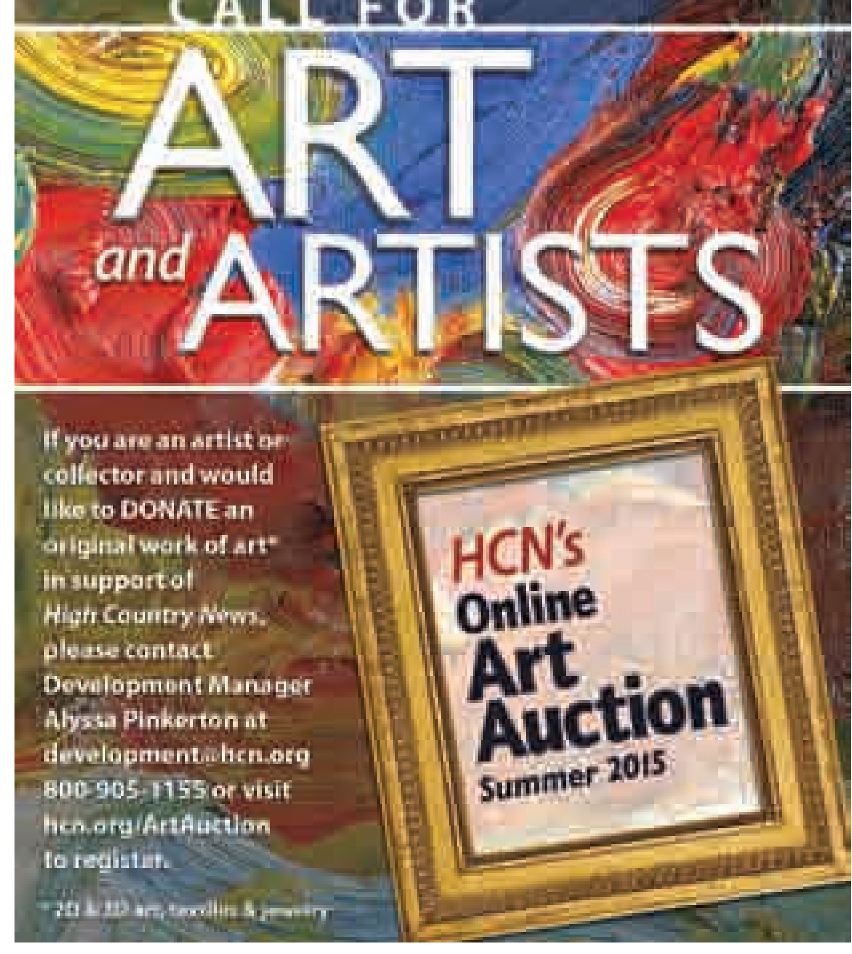


looking pumpjack and tank coated in chipping green paint and rust. This is the McKenzie #1-21 — the first producing, and the last remaining, well from a 200-well oil field that has since been replaced by city open space and stately homes. The equipment is from the '50s, Silverman explained, but the McKenzie was drilled in 1902 and produced until the 2000s. This was the first field in the basin that is now booming to the northeast, and helped establish Denver as the energy capital of the Rocky Mountain region, he said. "Let's not turn our back on any of our history. Let's recognize all of it."

I looked past the pumpjack at the three buzzing highways hemming us in, planes floating into the nearby municipal airport, and, to the south, the boxy complex of National Center for Atmospheric Research offices where scientists study climate change. If the McKenzie is a monument, I thought, does it celebrate all that hydrocarbons have given us and, as Silverman argues, provide a lesson that the scars of their extraction are fleeting? Or could it become a memorial to a world that we no longer want — a reminder that, if we push hard enough, this history could someday be just that, the past and nothing more? ■

A neighborhood in Erie, on Colorado's Front Range near Boulder, backs up to a well pad. EVAN ANDERMAN





Occupy *continued from page 23*

A lot of things started converging in my mind: Occupy. The fast food workers' "Fight for $15." The outrage and despair over the killings by police of Michael Brown, Tamir Rice and Eric Garner. ...

about the climate fight being not just about the environment, but a web of "intersecting oppressions." I understood that poor communities of color had long shouldered an unfair share of pollution, and that climate change promised to punch them hardest again. But was the climate fight really of a piece with the immigration fight? The struggle against police brutality? The connections weren't always obvious, and in any case, was it possible or practical to take on everything that was wrong with the world at once?

Then, on a December evening, after wrestling with writer's block in my Santa Fe office, I tackled what seemed like a more manageable task: applying for health insurance through the new marketplace. I'd left my staff job at *High Country News* about seven months earlier, to see if I could make it independently. My husband, a potter, had also recently started his own business. I typed in our unimpressive income, and up popped our options. The cheapest plan would cost around $225 a month. If we had a baby, a brochure informed me, it would cover $1,240 of average delivery costs, and we'd pay $6,300. This was insurance, new and improved? None of it was affordable. None of it. As I drove home, I cried alone in my car, then a little more in my kitchen. I felt ashamed. And then I got pissed.

The healthcare law had been carefully designed to win support from private insurance companies, but it still resulted in crappy options that squeezed scrappy people like us. It was hardly surprising, but it didn't seem fair. Then it occurred to me that maybe in that moment, I was angry about climate change, too. My basic complaints about the healthcare reform sounded pretty similar to the critique the activists I spoke with made about the failed 2010 federal climate bill: It tweaked a broken system at its edges, appeasing polluters for political viability rather than proposing the kind of changes the crisis actually demanded. It was a false solution, people told me, and many didn't care that it failed. I thought about their argument about "root causes," and recognized twinges of their anger in myself.

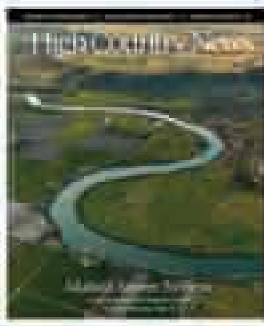
A lot of things started converging in my mind: Occupy. The fast food workers' "Fight for $15." The outrage and despair over the killings by police of Michael Brown, Tamir Rice and Eric Garner. All had one thing in common: the sense that our society is designed to work for some and not for others, with the balance tipping ever more in favor of those who need the least help. When I applied for health insurance, I felt something similar: The deck was stacked, against me.

The *New York Times* recently ran a story about the fight for $15 an hour, profiling one of the campaign's leaders, Terrance Wise, a father of three who worked at both Burger King and Pizza Hut and still had trouble paying rent and utility bills. When he asked his manager at Pizza Hut for a raise, she showed him the pay policy, saying she could boost his pay at most 25 cents after three years, even though he made less than $8 an hour. "If I gave you 25 cents," he recalled being told, "that means you're perfect."

"It makes me angry, and you should be angry, that these billion-dollar corporations are robbing from my kids and your kids," Wise said in the story. "So we're going to have to stand up and fight back." It was the same sentiment I'd heard in the Book Cliffs. People wanted a society with a little more humanity, one whose outcomes are less determined by corporations that serve only their shareholders, valuing profits above the stability of the atmosphere or the dignity of their workers.

When I first arrived at the vigil, I imagined the activists as agitators on the fringe of the environmental movement. They saw themselves, instead, as one twitchy muscle in a much broader and building unrest. I was starting to see them that way, too.

Be as frank as possible. They're not like regular people. That may be true, but these are not regular times. ■



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A protester sits atop a pile of rocks dug from the pit at the PR Springs site. COURTESY TAR SANDS RESISTANCE

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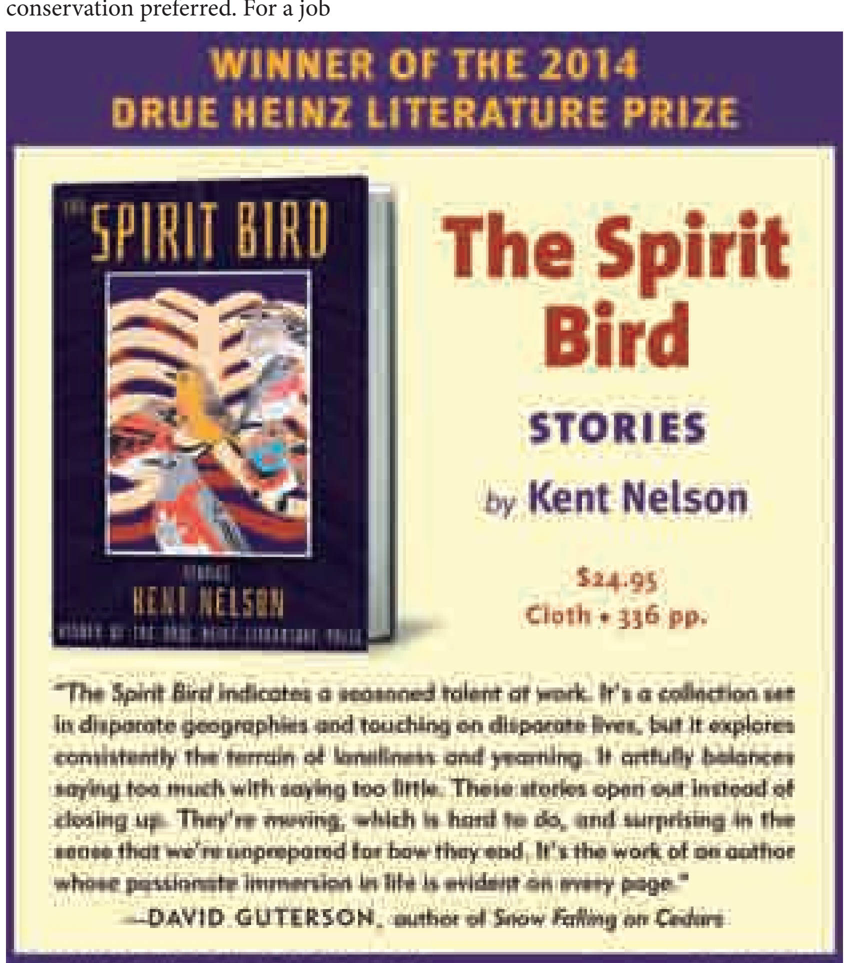

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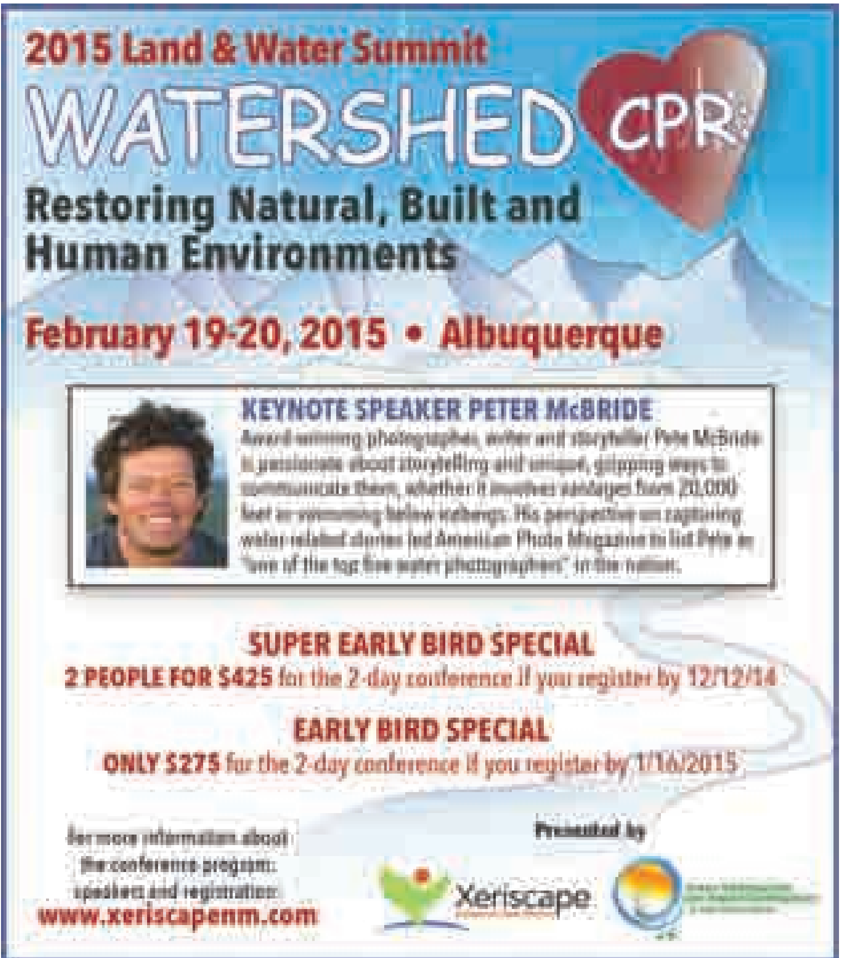

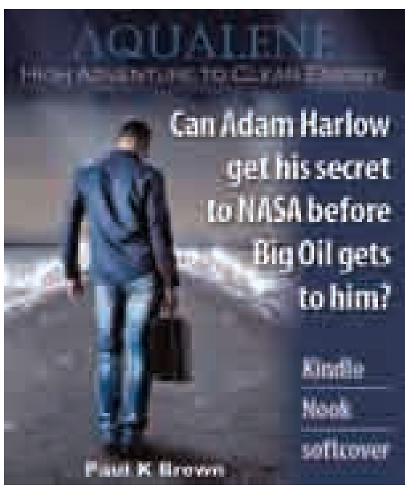

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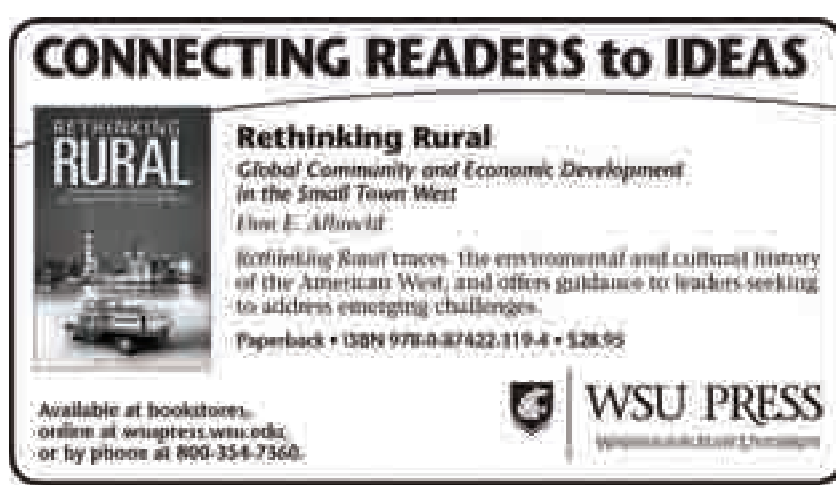

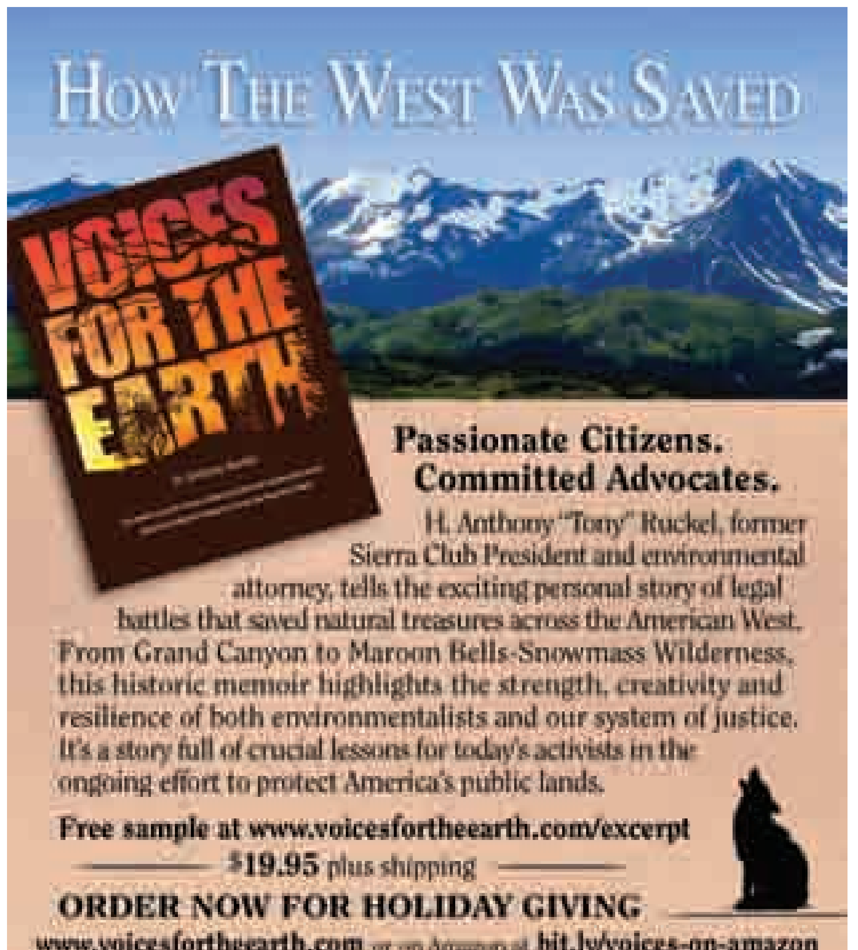

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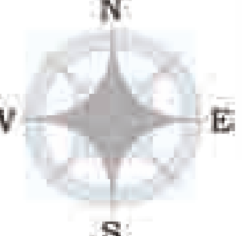


A Hot Day's Night

FICTION **BY PAOLO BACIGALUPI**
ILLUSTRATIONS **BY AIMÉE VAN DRIMMELEN**

"Pass me that allen wrench," Charlene said.

Lucy hesitated, considering the ethical boundaries of journalism, then stretched across Spanish roof tiles for Charlene's toolbox. Warm metal clinked under her fingers. The wrench glinted in the moonlight as she passed it over to Charlene, where she had lifted a solar panel and was fiddling beneath it. The black shadow of Charlene's body shifted. Metal ground against clay tile. Something cracked, a sharp, vandalistic report in the silence of the suburb.

"Hold this up," Charlene said. "I need to get underneath to the alarms."

"You didn't say anything about alarms," Lucy said.

"You think utilities just leave the good stuff lying around? Just because the people are gone, don't mean the electric company don't want their electricity. Now hold the panel up, will you?"

With a sigh, Lucy shoved her arm into the gap. Charlene's flashlight flickered on, its red beam illuminating the hole between the panel and the roof. "Hold it there." Charlene pinched the penlight in her teeth, peered into the shadows. "Well, I'll be damned."

Lucy didn't like the tone of Charlene's voice. "What now?"

"They got it set to close a circuit with the grid current if we cut this loose. Electrify the whole damn roof. Do me a favor and don't move. I don't want to end up as a crispy critter."

"Christ. I thought you said you knew what you were doing."

Charlene laughed. "I thought you said you wanted to see the real Phoenix." She crawled over Lucy, and starting rooting through the toolbox. "You know where my snips got to?"

"I'm trying not to get electrocuted!"

Charlene grinned, a flash of white teeth and a black gap where her incisors had gone missing. "What's the matter? Too much story for you?"

Lucy didn't take the bait. She kept her arm grimly in the gap, holding up the panel and trying not to think about 220 volts ripping through her body. She wondered if the sweat covering her would make her a better conductor. One hundred-and-two degrees at 2 a.m., and the temperature probably wouldn't make it down to a hundred before dawn. She blinked salt out of her eyes, trying not to think about sweat beads dripping from her arm and closing some circuit that would leave her as fried scavenge meat for crows and magpies and vultures.

I thought you wanted to see the real Phoenix.

From Lucy's vantage, she could see plenty of the city sprawling across the basin. In the past, at this time of night, it would have been a heavy quilt of light, ending only where mountains and wilderness designations pushed back against development. Now, though, abrupt geometric holes of inky blackness punctured the blanket. Building-block cutouts of darkness as if a child had taken scissors and started cutting patterned holes, industriously trimming swatches out of Phoenix. A subdivision here. A development there. A whole township, cut right from the heart of the blanket.

In the daytime, with desert sun searing down, the metro area's sprawling suburbs appeared largely equal. Chandler was the same as Scottsdale, was the same as Gilbert, was the same as Avondale or Peoria or Mesa or Fountain Hills. All dusty, all the same. But at night, these gaps were revealed. Places where the aquifer had collapsed after overpumping. Places where intercity water-sharing agreements and hydro development contracts had shattered. Places where Central Arizona Project water no longer re-filled the aquifer, and where water wells had sucked cones of depression so deep and wide that others were left pumping sand. Points of failure in an overstressed system, that now showed as black swatches of hollowed houses, where nothing moved except coyotes and the occasional Merry Perry refugee.

Charlene's Phoenix. The real Phoenix. The only aspect of Phoenix that seemed to be growing.

Charlene finally found her tools and returned to the panel. She flopped prone and dug into the wiring. In the far distance, traffic rumbled on the broad boulevards that crisscrossed the city, but here in the abandoned subdivision, all was quiet except for the rattle and click of Charlene's tools.

It was hard to write stories about silence, Lucy thought. Most journos who covered the drought spent their time out near the borders of California and Nevada and Utah, filing stories about Arizona barbarism and Merry Perries, who'd fled out of Texas only to be crucified in the medians of the interstate.

Sometimes they wrote stories speculating about who was responsible for attacks on the Central Arizona Project, describing the exquisite vulnerability of a canal that stretched across three hundred miles of burning desert just to give Phoenix a sip of the Colorado River. They spun conspiracy theories on whether it was California or Las Vegas to blame for repeatedly bombing this last critical IV drip, always tying it to the apocalyptic depths of Lake Mead and Lake

Havasu and the rest of the Colorado's shrinking storage capacity, no longer able to share. These stories at least had a few pictures of blue lake reservoirs with white bathtub rings on red sandstone to recommend them. The reporters fed eagerly on the scarcity and mayhem and conspiracy, wrote their stories, and then jumped on the next flight out, eager to get back to places where water still came out of the tap.

Meanwhile, Lucy stayed, and hoped for something deeper.

"Ha!" Charlene held up a triumphant tangle of wiring. "We're not frying tonight!" Her gap-toothed smile flashed in the darkness. "Told you I know what I'm doing."

Charlene's missing teeth: They had first caught Lucy's eye while she was drinking in the late afternoon up on the rooftop of Sid's, watching the regulars as they reclined under raggedy umbrellas and passed a .22 down the line, taking potshots at whatever moved in the half-built subdivision that Sid's occupied, like an outpost in a stick-frame construction wilderness.

And then Charlene had emerged, climbing up the ladder to the roof, buying a round for everyone because she'd just scored big, grinning that gap-tooth smile. As soon as Lucy figured out what Charlene did for a living, she knew this was the story that would break open the silence of Phoenix's emptying subdivisions.

The suburbs were quiet, but Charlene was loud. Lucy would write a little about the woman's background — and then shift focus, different angles for different publications. She could do one about the changing nature of Phoenix sprawl for *Google/NYTimes*. A piece for *The Economist* about the scavenge economy rising from the ashes of the old construction and sprawl economy. A longer piece for *Kindle Post* that she could keep the rights to. Three stories, at least, easy money. Except that Charlene's story came with strings.

"Duck!" Charlene whispered.

"I can't!"

Headlights shone in the darkness, coming around a curve and illuminating their street.

It was too late to run. Lucy smashed herself flat against the roof tiles, feeling like a bug on a microscope slide. The SUV was nearly silent, riding on its batteries. Only the hiss of its tires as it drove up the dust-rutted street announced it.

"You ready to run?" Charlene whispered.

"Run where? My truck's parked in the garage down there!"

"Oh yeah." Charlene chuckled. "Good thing I closed the garage door. Otherwise they'd nail us for sure. Or you, at least. You, they'll definitely track down. Probably better hold still."

Down on the street, the SUV seemed to be slowing.

"I'll bet you're wishing you were back in Connecticut right now, writing stories about seawall breaks and hurricanes, instead of lying here waiting to get your face kicked in."

Lucy bit off an angry response. Maybe she could just explain herself. Explain that she wasn't really with Charlene at all. Just a journalist doing a story. Not a thief. Not part of the story. Just writing about the lady they were locking up —

The SUV eased closer, rolling just below them. The whole area was illuminated, daylight invading nightscape. Every instinct told Lucy that they'd been spotted, that she needed to bolt.

Charlene gripped her wrist, hard. "Don't you dare rabbit now, sweetheart."

The nearly silent electric vehicle slid past, reached the end of the street and disappeared around another curve. Lucy let out a breath she hadn't realized she was holding.

Charlene scrambled up and grabbed the solar panel she'd been working on. Started wrestling it down to the edge of the roof, moving quickly.

"You're lucky we got a lazy one. Sometimes they're motivated, swinging their searchlights all over, using their damn eyes to look around. Nothing worse than a motivated junk patrol."

"Are there a lot of those?" Lucy could still feel her heart pounding.

"Nah. It's way easier, now. Used to be that everyone thought the owners would come back. They kept saying Roosevelt Lake would fill up again, or there'd be enough water in the CAP to share around. Made junk patrol feel like they had a real job. Protecting private property and all that shit." She snorted. "But the reality is, there's just not much use for granite countertops or three bathrooms in a house if there's no water going down the toilets or filling up the sink. These places deserve to be scavenged now, and junk patrol knows it. Biggest problem is getting to the good stuff first, before someone else does." She set the panel at the edge of the roof. Waved to Lucy. "Grab a crowbar. We need to get the rest of these panels down before they come back."

"I didn't agree to that. I'm just here to write your story."

Charlene shot Lucy an irritated look. "You want to be here when the junk patrol loops back around? Maybe get a smile like mine?"

"I didn't say I was going to help you —"

"Steal?" Charlene supplied.

"— take things. We agreed I was going to write your story."

Charlene shrugged. "Well, you don't get shit unless you help. The way this works is you put your sweat into my business, and I put a little of my own sweat into yours. We help each other out, right? Either that, or you can go back downtown and hang with the rest of the out-of-state reporters, drink your hotel martini, file some vulture story about Merry Perries getting strung up on the interstate and get the hell out. Your choice."

Lucy hesitated.

"Can't make an omelet without breaking eggs," Charlene said.

Eggs.

Ethics.

Lucy remembered a J-school professor of hers, Shondra Goh, talking ethics and boundaries and the dangers of identifying too much with subjects.

She sighed. "Give me the crowbar."

"That-a-girl!"

They went to work, prying up each panel, Charlene crouching down to cut wires and disable the silent alarms that would summon the junk patrol. Lucy handed allen wrenches and snips and diamond-bladed hacksaws, and Charlene dismantled twenty kilowatts worth of solar panels with medical precision.

"You know I used to install these systems?" Charlene said. "Back when people were building them?" She chuckled. "And now here I am getting paid to rip them out."

Lucy didn't answer. With each crack, pry and heave, she wondered if she'd finally become too compromised to call herself a journalist. Her and her stories: Before she'd moved down to Phoenix, they'd seemed so nicely compartmentalized. And now, here she was, pulling her truck out of the garage so they could load solar panels into the back. Taking part in Phoenix's most popular pastime.

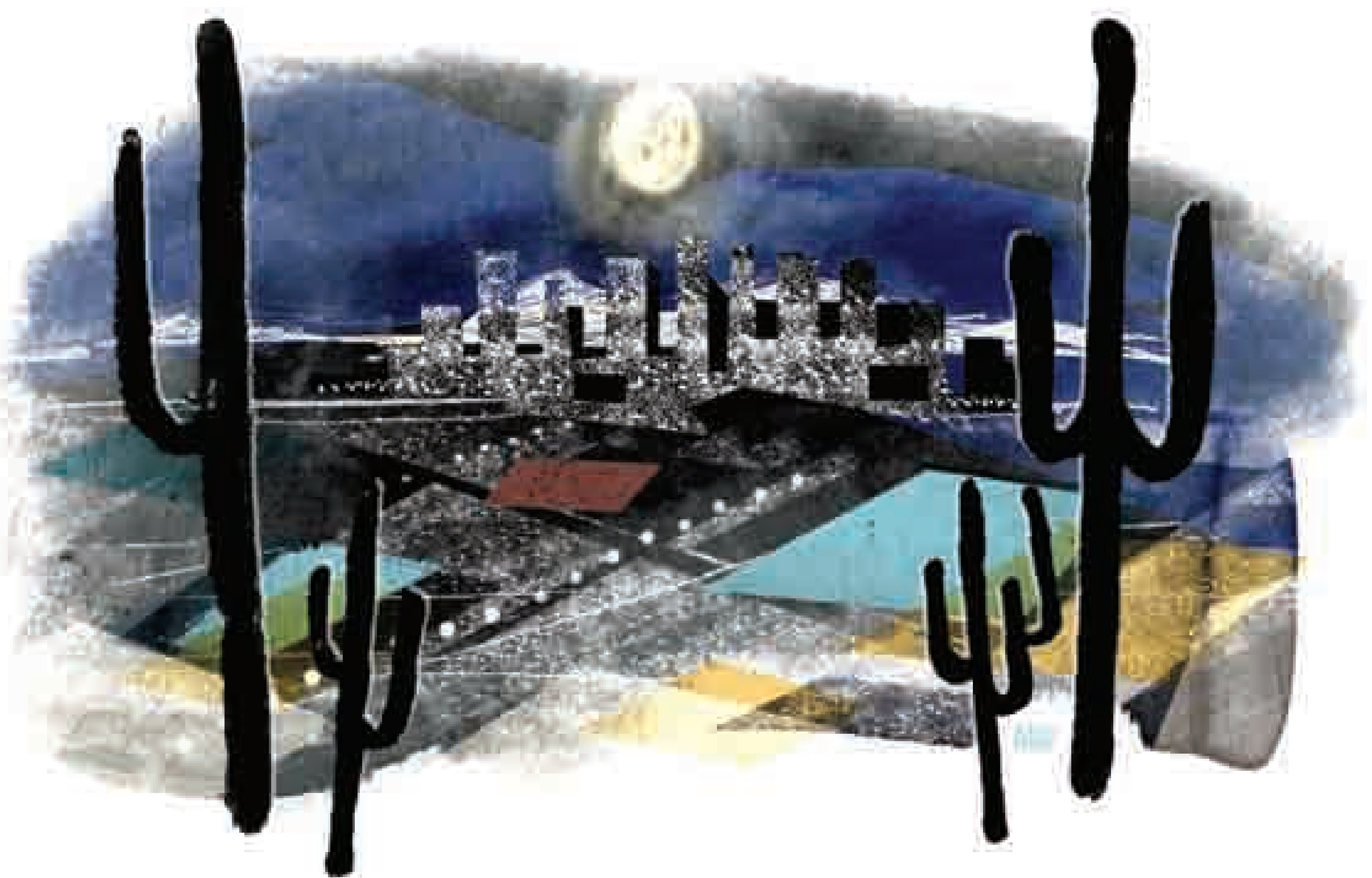
Maybe that was the story, Lucy thought, as she heaved herself back up onto the roof. The real story. Not that Charlene had remade herself as a pillager of other people's lives, but that Phoenix had a way of stripping away a person's moral compass. Once it got bad enough, you got desperate enough; the person you started out as wasn't the person you ended up as.

"Hey, Charlene?" Lucy asked as she lowered another panel over the rim of the roof and into Charlene's waiting hands.

"Yeah?" Charlene took the panel with a grunt, and hauled it over to set it with the rest in the back of Lucy's truck.

"How come you didn't leave? I mean. When you could?"

Charlene returned and held up her hands, waiting for Lucy to hand down the next panel. "Hell. I don't know. Guess it just



didn't seem real to me. Slow apocalypse, you know? In hindsight, it all looks real clear. But at the time?" She got hold of the panel as Lucy lowered it, set it down on the driveway's hot concrete. Leaned against it. Her sweat gleamed on her face in the moonlight as she looked up at Lucy. "You could kind of see it creeping up, like, out of the corner of your eye, but you couldn't see it up close and sharp." She shrugged, picked up the panel and hefted it into the truck with the rest. "We're good at doing shit like running away from the junk patrol. I mean, that's a threat you can understand, right? But who the hell thinks about running away from an extra hundred-degree day?"

Charlene turned sharply at a noise. "What's that?" she called. "What do you see up there?"

Lucy straightened. One street over, headlights glowed. "Junk patrol!"

"You were supposed to keep your eyes open! You're the one up top!"

Lucy didn't bother saying that it was hard to keep a lookout and dangle panels over the edge of a roof. She took a breath and jumped. Her ankle twisted as she hit the driveway, but she staggered for the truck, limping and hopping while her ankle flared. She yanked open the truck door and heaved herself inside.

"Get it back in the garage! They're almost here!"

For a horrible moment, Lucy couldn't make the truck start, but then it came alive. The truck's headlights came on automatically, a beacon announcing that there were thieves in the neighborhood.

"What are you doing?"

Lucy killed the lights.

"Come on! Come on!"

"I'm trying!" Lucy jammed the truck into gear and roared into the garage. Charlene slammed the garage door down. Lucy jumped out, almost fell as her ankle flared again.

"Did they see us? Did they see us?"

"Shut up! I'm trying to listen."

They both pressed their ears to the metal of the garage door, straining for tell-tales. Listening for voices. For radios. For someone calling for backup. A minute ticked by, while blood pounded in Lucy's ears and sweat dripped from her nose.

With the truck off, the garage was pitch black. In the silence, Charlene's form rustled. There was a faint buzz and then a firefly of light came on, the purple tip of a cigarette, glowing as she took a drag, illuminating her sun-wrinkled features.

"You want?" she asked.

Lucy took the cigarette. Activated it. Felt the nicotine buzz as she inhaled.

"Never feel as alive as when you think you're about to get your teeth kicked in," Charlene said as she accepted the cigarette back. She started to laugh.

"Would you be quiet?" Lucy whispered fiercely.

"Don't worry. They're gone."

"How do you know?"

"Junk patrol isn't subtle when they're on your trail." She took another drag, then rolled up the garage door. Moonlight flooded in. The air outside was cooler than in the garage. A relief. Fresh after the black heat.

"Nice night," Charlene said. "Bet it gets down to ninety-nine before dawn." She took another drag on the cigarette. "You want to search the house, see if there's anything else you want?"

"I just want to get out of here."

"Suit yourself."

An hour later, just as the dawn was starting to break the horizon, they dropped the panels with a tattooed man who paid Charlene with a wad of paper money along with a Crypto-Cash card. Charlene checked the card value, then pressed the paper money into Lucy's hand.

"What's this?"

"Your share."

Lucy tried to give it back, but Charlene waved her off. "No. Take it. It's yours."

"I can't —"

"You journos always make your money selling stories more than once. Just think of it as another angle on your story."

She climbed into her own truck, rolled down the window and leaned out. "I'll meet you at Sid's tomorrow, and we'll do it again. There's a place down in Chandler that looks like it's probably got twenty-five kilowatts."

"I'm not going again."

"Sure." Charlene laughed. "Keep telling yourself that." ■

Postcards from Fire

Mom,

I am driving. The night bursts. Stars explode millions of years ago and flood the car. Stars explode a hundred thousand years ago and ping off the hood and windshield. Stars explode 60 years ago and flurry in little ground storms around the spinning tires.

Yggdrasil bore the weight of ancient Norse cosmology. Scholars argue over the etymology of the word. Some link it to "Odin's horse;" others to "tree of terror" or "tree of gallows." It is one of many trees of lineage, of memorial, a means of tracing. Just over a rise on Highway 50 in central Nevada, there is a tree covered in shoes. It is old but very alive. No one knows when passers-by began crowning it. There is no plaque or commemoration visible. We can only guess the intent. A sacrifice? Were shoes no longer necessary? Did they just not have far to go?

Dear Mom,

I pull off near the gate. No services, no people, nothing to spare. They call this place Bravo. One of many Bravos, but this happens to be one of the most bombed places on Earth. Pitted sandbox. Playground of those far removed. I walk it, at least what I can. A photographer wants to make this a national park. He documents it tenderly, calls the series Cantos – a nod to Dante, a wink to Pound. We are in deep here. Bravo, bravo.

There is a town in Pennsylvania called Centralia. It is far from this desert. It has burned for 60 years now. A ribbon of coal tucked beneath the crust was ignited by a fire in a garbage dump. This set the minotaur chasing its own tail deeper and deeper into the earth. A town burns; its people are told the fire will burn itself out in a year. The earth swallows a bicycle and a pet; they are told it will burn itself out in five years. A subsidence opens and a child tumbles in, is hospitalized by the fumes. They are told it will burn itself out in 20 years. One year ago, the last remaining residents were forcibly evacuated. Centralia no longer appears on maps. It is like this desert, but honest with itself. It burns; it trysts in the open. Here, the fire is cold, windswept.

Mom,

At ground zero, heat is so intense the sand turns to glass. There are mirrors dotting the desert that are so large, no matter how long we stare, we always disappear. By now, they are covered in sand. And when some unimaginable descendant stumbles upon one, what will he think? Will he look up at the sky and wonder who was so vain, who was looking down?

Region of sacrifice. Erogenous zone of faith. We hold a federal wafer to our lips, take it into the body. Transubstantiation of all things beyond the naked eye. Though we walk in the valley of death, we fear no light. We will rise from the ashes, sweep them from our children's hair and go about their business.

Years ago, we walked deserts. You pointed out geometry in the cracking terrain. Salt flats and playas delicately bent and poised. Thirst metastasizes perfectly, one pattern juxtaposed onto one ever larger. We can follow these lines to the very end, pace the logic of time until overwhelmed. Of course, there is interference. We cluster and dig and cannot help ourselves. Tandem acts of violence — one silent, one loud enough to briefly interrupt the course of the planet. Just as we walked, others paced their offices, following things through to the end.

Your thyroid will be quickly forgotten. There will be pills, but that is charted territory. Your voice will change a little, become rockier, but will have a certain gravitas. Be glad the doctors insisted. Be grateful that other people canceled appointments. Be sure to thank them for their speed.

Dear Mom,

Teller, Oppenheimer and the others were obsessed with walking, their pacing slowly shifting the spin of the earth, wearing away the soil. Problems found solutions in motion. The pressure, the weight of their feet. Did it churn the soil to glass? Oppenheimer lobbied hard for Los Alamos as the site for his work, partly because of its beauty, its mesas. There is no mention of him venturing out to look into Trinity's mirror. Perhaps at night, alone.

I'm told that correlation does not equal causation. That phrase is too much an aside, too slippery on the lips. Too many organs gone missing. Too much iodine substituted for questions. Too few miles to justify comfort. I can't prove anything, and you choose not to think this way. But out here, it is quiet. Out here, no one can tell me I'm wrong. Out here is red-handed.

Mom,

We take cartographic knowledge for granted. If an X is present, we say, "There," say, "Something." If it is missing, we jump to conclusions, say "Nothing." This is the origin of "region of sacrifice," the designation given to the Great Basin. The missing X's denote areas of low population densities and few resources — in other words, wasteland. If you are brave enough or foolish enough to cross the bombing ranges that dot the region, you will see enormous targets painted haphazardly on the earth and huge X's splayed in the sand, pocked and waiting on the next pilot.

I am writing this at the foot of your bed. The desert behind us both. You are sleeping, whole, though your throat is sore. You will want ice when you wake. I have a cup ready. My fingers rest on the cubes, their tips burned ever so slightly. I did not want you to see yourself here, so I took the mirror from the bathroom and hid it beneath the bed. When I grabbed it, it was hot to the touch. ■

PHOTO: MARK ESGUERRA

HEARD AROUND THE WEST | BY JONATHAN THOMPSON

BOVINE RETRIBUTION

Many things define the West: our vast swaths of public land, our fiercely independent spirit and, of course, our cows and the zany — sometimes disturbing — ways we interact with them, whether living or dead. Consider this *Salt Lake Tribune* headline: "Dead cow clogs Utah slot canyon; rancher's impromptu barbecue makes things worse." You know you want to know what happened. Well, in early December, the cow in question ambled down Peek-a-Boo canyon in southern Utah's Grand Staircase-Escalante National Monument, apparently unaware that ungulates of its ilk are forbidden. When the cow's owner found out, he headed out on his ATV (also forbidden) to retrieve the cow. Slot canyons are skinny; the cow was not, and it became irretrievably jammed. The frustrated rancher then shot and killed the cow. He tried to extract the carcass, first by butchering it, then by burning it. Neither succeeded. As of mid-December, monument staff were still trying to remove the carcass. In the meantime, hikers are forewarned: That thing that smells like a charred, dead cow really is.

And in Pocatello, Idaho, a cow escaped the frying pan in December only to end up in the line of fire. An unhappy heifer bolted from a butcher shop's chopping block, racing out into the town. Local cops gave chase, and the desperate cow rammed an animal-control truck and two police cars, according to the *Idaho State Journal*. Police officers, concerned about the safety of residents, shot the cow once, without result, then again, fatally. The former cow was returned to the meat-processing facility from whence it escaped.

Meanwhile, in Salmon, Idaho, cows have been vanishing at an alarming rate. Modern-day rustlers are believed to be trying to cash in on high beef prices. It's a logical explanation. But then again, with cows elsewhere hiding out in slot canyons and busting out of butcher shops, you gotta wonder. … Is the Cow Liberation Moovement to blame?

CALIFORNIA **The sign says it all.** CAROLYN ROSNER

ARIZONA

Rural Westerners are so accustomed to seeing bears roam residential streets that they barely notice. Except in suburban Mesa, Arizona, where a single black bear sighting sent everyone into a tizzy. After local television channels showed aerial footage of the bear "on the loose" (as if bears aren't supposed to be "on the loose"), running from wildlife officials through an alfalfa field à la O.J. Simpson in his Ford Bronco, folks headed out to watch the show in person. Social media was abuzz, and the bear even got his own Twitter account. Unlike the Pocatello runaway cow, the bear was deemed no threat, and it eluded its tranquilizer-dart-shooting pursuers for several days. Finally, on Christmas Day, it was captured and relocated to more bear-appropriate habitat in nearby mountains.

THE OIL PATCH

If you want to see how plunging petroleum prices are affecting oil country, look at applications for drilling permits (down), rig counts (down, but still higher than this time last year) and rents in the boomiest of the boomtowns, Williston, North Dakota. According to Craigslist, in early January, Williston rents were holding steady, i.e., hovering in the stratosphere: Two-bedroom apartments are still listed for up to $2,500. In other words, the boom hasn't busted. Yet. We checked out the "Bakken Oilfield Fail of the Day" Facebook page, which documents equipment breakdowns and truck crashes, and also serves as a general soundboard for oil-patch workers and residents. There, opinion regarding oil prices is also mixed, with some posters forecasting an imminent crash ("work has definitely slowed down the last two months"), while others cling, cautiously, to optimism. ("Take a deep breath. Do not jump ship. This is the patch. It always bounces back.") And some, though concerned about the impact of low oil prices, see a silver lining, particularly when it comes to what they regard as justice for local landlords: "What goes around comes around. I hope their greed comes back to bite them in the a--."

AROUND THE WEST

In Wyoming, a man was shot by his dog when the dog jumped on a loaded rifle in the backseat of the car. The man survived; the dog, as far as we know, avoided arrest, without having to argue about standing its ground. Twenty-one elk died in Colorado after falling through the ice on a reservoir south of Pagosa Springs. When a moose was buried by an avalanche in Hatcher Pass, Alaska, in late December, a group of passing snowmobilers dug it out. "It didn't even fight us," a rescuer told *Alaska Dispatch News*. "It was like, 'Help me. Help me.' It was totally docile and let us touch it. It just (lay) there." The moose survived, apparently unharmed. And officials from Canada's national parks are placing red plastic chairs, costing $550 per pair, at various locations in the parks to help people "connect with nature."

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.

High Country News

For people who care about the West.

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"I saw three bright white snowshoe hares in small snow patches on an otherwise dull brown turf. **I hope the rabbits make it through the winter**, and I hope they can adapt to climate change."

Andy Gulliford, in his essay, "Caught wearing the wrong color," from Writers on the Range, www.hcn.org/wotr

Our annual special issue on the future

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Illustration by Eric Baker.

JOIN THE CONVERSATION

"Whoa, cowpokes: Let's back up a little and look at the big picture. Given the fact that the current 'native' habitat of this species was fully glaciated and uninhabitable back at the end of the Pleistocene, we can be damn near certain that these guys once were native in the La Sals."

–Chris Rosamond, commenting via Facebook on Krista Langlois' story "Non-native goats in Utah's La Sal Mountains: How bad are these ungulates for the ecosystem?" hcne.ws/1zPm29S

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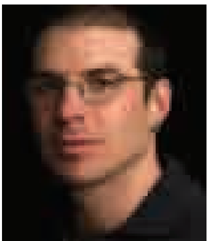
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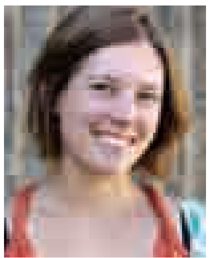
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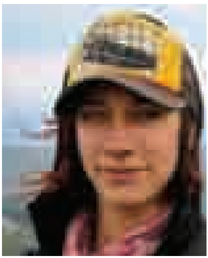

GILMAN

MORTON

NIJHUIS

PERKINS

Amy Mathews Amos has spent her career at the interface of environmental science and public policy as an analyst and consultant. She writes about conservation, wildlife and health from her home in Shepherdstown, West Virginia. @AmyMatAm.

Paolo Bacigalupi, author of *The Windup Girl*, has won the Hugo, Nebula and Michael L. Printz awards and was a finalist for the National Book Award. *The Water Knife*, a political thriller about a water war between Las Vegas and Phoenix, will be published by Knopf in May. @paolobacigalupi

Cally Carswell is a *High Country News* contributing editor and freelance science and environmental journalist based in Santa Fe, New Mexico. Her work has recently appeared in *Science* and *Modern Farmer*. @callycarswell

Sarah Gilman is a deeply ambivalent hydrocarbon addict, freelance writer and *High Country News* contributing editor now based in Portland, Oregon. She served as the magazine's associate editor for six years. @sarah_gilman

Ben Goldfarb is a Seattle-based correspondent for *High Country News*. His writing has appeared in *Scientific American, Pacific Standard, Earth Island Journal* and *Modern Farmer*. @ben_a_goldfarb

Benjamin Hale is associate professor in the Philosophy Department and the Environmental Studies Program at the University of Colorado, Boulder. His essays have appeared in *The New York Times* and *Slate*. @BenjaminHale3

Alex Carr Johnson is a freelance journalist living in western Colorado. @carr_johnson.

Michael McLane is an editor for *saltfront: studies in human habit(at)* and *Sugar House Review*. His work has appeared in *Colorado Review, Interim, Western Humanities Review* and *The Dark Mountain Project*.

Timothy Morton is Rita Shea Guffey Chair in English at Rice University in Houston. He is the author of *Realist Magic: Objects, Ontology, Causality* and *Hyperobjects: Philosophy and Ecology after the End Of The World*. He is currently working on a writing project with Icelandic singer-songwriter Björk.

Michelle Nijhuis is a longtime contributing editor at *HCN*. After 15 years off the electrical grid in Paonia, Colorado, she now lives and writes in White Salmon, Washington. @nijhuism; michellenijhuis.com.

Nathaniel Kennon Perkins lives and works in Salt Lake City. His creative work has appeared in *Triquarterly*, *Decomp*, *Pithead Chapel* and other publications.

Adam Sowards is an environmental historian at the University of Idaho. He is the author of several books and essays, including *The Environmental Justice: William O. Douglas and American Conservation* and the editor of *Idaho's Place: A New History of the Gem State*. @AdamMSowards.

DEFINED
Ecocentrism A theory of environmental ethics that extends moral considerations to entire ecosystems — not just humans or animals.

Where's Aldo?

The case for voluntary decency

BY MICHELLE NIJHUIS

"Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

—Aldo Leopold, "The Land Ethic"

In 1948, Aldo Leopold suffered a fatal heart attack while helping fight a fire on his neighbor's farm. The next year, thanks to the determined efforts of family and friends, Oxford University Press published a collection of his essays called *A Sand County Almanac*. In the decades since, it has become an environmental classic, and "The Land Ethic," one of its final essays, has woven itself so tightly into the language of American conservation that it's often quoted unconsciously, without attribution. Like the apocryphal playgoer who complains that *Hamlet* is full of clichés, first-time readers of "The Land Ethic" are sometimes surprised by its familiarity: So *that's* where that line comes from!

The endurance of Leopold's essay is at least partly explained by its eloquence. Plainspoken but poetic, dense in the best of ways, it has a practical Midwestern beauty that serves it well. It is complex yet eminently quotable, even in 140-character chunks. But it's also more than 60 years old. Today, decades after it was written, the Western landscape faces forces almost too big to understand: urbanization, global energy demand, the compound effects of climate change on water and wildfire. Is Leopold's land ethic big enough to take them on?

"THE LAND ETHIC" WAS THE CULMINATION of decades of thinking about conservation and, more broadly, about the relationship of people and nature. Leopold, a lifelong hunter and trained forester, recognized — and cherished — the practical benefits of nature. He accepted that people lived inside ecosystems, not apart from them. But he had also lived through the Dust Bowl and the Great Depression, and seen the topsoil of southwestern Wisconsin, unmoored by drought and the profit motive, blow away and slip toward the sea. He understood, from bitter experience, how humans could fail nature. How, he wondered, could we do better by it?

"There must be some force behind conservation," Leopold mused in lecture notes from the 1940s. "More universal than profit, less awkward than government, less ephemeral than sport, something that reaches into all times and places. ... I can see only one such force: a respect for land as an organism; a voluntary decency in land-use exercised by every citizen and every land-owner out of a sense of love for and obligation to that great biota we call America."

Voluntary decency. That polite phrase doesn't appear in "The Land Ethic," but the essay is an argument for its necessity — and for its potential to power change at even the greatest scale. "A system of conservation based solely on economic self-interest is hopelessly lopsided," Leopold wrote. "It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. ... An ethical obligation on the part of the private owner is the only visible remedy for these situations."

Leopold thought that if Wisconsin farmers had a stronger sense of voluntary decency, they would have used the soil-conservation funds allocated by the state in the late 1930s for more than just immediately profitable measures. They would have improved their farming practices until their livelihoods, their neighbors' livelihoods, and the topsoil itself were protected for the long term. Many of us routinely accept such "obligations over and above self-interest" as members of the human community, Leopold observed. We fund schools not attended by our immediate family; we pay for roads not traveled. A land ethic, he argued, would simply extend that sense of obligation beyond people to the land itself — to what he called the entire "biotic community."

Leopold wrote most of "The Land Ethic" in a shored-up chicken coop on a desperately overworked piece of farmland on the Wisconsin River. The place he and his family called "the Shack" was, like "The Land Ethic" and many of his other writings, a product of the Great Depression and the Dust Bowl, the paramount ecological challenges of the day. After the Leopolds bought the land in 1935, they spent years struggling to revive it, planting hundreds of trees only to watch them be killed by drought. Eventually, they restored a patchwork of pines, hardwoods and prairie that survives today.

Leopold's response to the disasters of the 1930s was characteristic of his times. Char Miller, an environmental historian at California's Pomona College, points out that many of Leopold's contemporaries — composer Aaron Copland, filmmaker Pare Lorentz, anthropologist Margaret Mead — also sang the praises of simpler, close-to-the-ground living. But for Leopold, at least, going "back to the land" wasn't a retreat from the world's problems; it was an attempt to start solving them.

We, too, live in a time when ecological disaster seems very close and very real. It's tempting, perhaps even more now than then, to hide out in the metaphorical chicken coop. But Leopold's ethic is still working, covertly and overtly, against that urge. Leopold biographer Curt Meine, in the 2011 documentary *Green Fire*, finds the land ethic expressed in suburban prairie fragments, urban habitat-restoration projects, and similar efforts that aim to connect people with the nature of nearby places. Such connections, he says, foster the sort of voluntary decency Leopold described: a respect for nature, even in its most humble, altered and unlovely

Aldo Leopold with Flick, c. 1944. In lecture notes, Leopold wrote of "voluntary decency" as an essential element of conservation.
COURTESY THE ALDO LEOPOLD FOUNDATION, ALDOLEOPOLD.ORG

states, an awareness of one's place as a "plain member and citizen" of it, and a willingness to sacrifice time, money and effort on behalf of its lasting health.

LEOPOLD KNEW THAT NATURE never had, and never would, exist in splendid isolation. While he spoke eloquently against a conservation strategy based on economic self-interest, he also distrusted purely preservationist arguments such as those advanced by Sierra Club founder John Muir. To Leopold, successful conservation required human connection to the land, and connection required use — respectful use, yes, and use for spiritual and aesthetic as well as economic benefits, but deliberate, active use. Even wilderness, he submitted, was a form of land use, perhaps the highest form of it. That seeming paradox is more relevant today than ever: We know, with greater and greater certainty, that it's impossible to put nature in quarantine — and equally impossible to survive without it.

"I think climate change, and the disruptions it's bringing to biological life, makes a preservationist impulse problematic," Miller says. "A conservation ethos that allows us to repair the dilemmas we've created is going to be much more useful in the coming century." Though that repair work requires us to muster yet more voluntary decency, it can create the connections that foster it, too.

When Leopold wrote "The Land Ethic," he was at the top of his field, revered for his pioneering work in forestry and wildlife science. He was also in poor health, suffering from a painful facial tic that resisted treatment. It's easy to see his most famous essay as the product of that confident mind and failing body: Despite Leopold's ambitious scope, he is careful to emphasize that his is far from the last word. "Nothing so important as an ethic is ever 'written,' " he concludes. Ethics evolve "in the minds of a thinking community," he believed, and do so slowly, amid more immediate obligations. ("Breakfast comes before ethics," he once told his daughter, Nina.)

Our challenge, then, is to continue — or better, accelerate — the evolution of the land ethic and the ideas that underpin it. Three generations after Leopold, we're even more distracted than the people of his time, and our environmental problems are in many ways vastly more complicated and pressing. The biotic community is as interconnected as ever, though our influences upon it are greater now, and voluntary decency must stretch to serve species and places we don't know and never will. But we can still start in the same place Leopold did: in the chicken coop, and with the problems of the backyard biota.

Is Aldo's land ethic big enough for the modern West? No. But without its propelling force, nothing else will be, either. ■

QUOTED

We asked readers to quote their favorite writers — those whose ideas are driving much of how we think about the world now and into the future. You'll find a sampling throughout the first section of the issue. See more at hcn.org/enviroquotes. **SARAH TORY**

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

—Aldo Leopold

As author, scientist, ecologist, forester and environmentalist, **Aldo Leopold** helped shape the modern conservation movement. He's best known for *A Sand County Almanac*, in which he articulated what he called "The Land Ethic" — a broader understanding of the relationship between people and nature. *Suggested by Carol Underhill*

"The Peace of Wild Things"

When despair for the world grows in me
and I wake in the night at the least sound
in fear of what my life and my children's lives may be,
I go and lie down where the wood drake
rests in his beauty on the water, and the
great heron feeds.
I come into the peace of wild things
who do not tax their lives with forethought
of grief. I come into the presence of still water.
And I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free.

—Wendell Berry

Wendell Berry is a poet, fiction writer and essayist. A passionate cultural critic, he celebrates the small family farmer while promoting an economic and political order that preserves the connections between people and the natural world. *Suggested by Mike Hensley*

DEFINED
Standing Morally, a party whose interests must be considered by other moral beings; legally, a party that can bring suit in court.

Law and nature

The famed dissent of Justice William O. Douglas

BY ADAM SOWARDS

In 1965, the Sierra Club sued to stop a ski development in Sequoia National Forest, California, arguing that Walt Disney Enterprises' proposed resort would constitute an injury to Mineral King Valley. In 1972, the Supreme Court rejected the club's reasoning, unwilling to accept that natural objects had standing to sue in court. Instead, the court urged the Sierra Club to amend its complaint to show how the club's members, rather than the valley, would be injured. The club did so, and the ski resort was stopped.

However, one justice, William O. Douglas, was persuaded by the Sierra Club's original reasoning. His passionate dissent in *Sierra Club v. Morton* marks a pivotal point in environmental legal battles, one that still shapes advocacy today and points the way toward a potentially different way of thinking about nature.

Douglas' views were inspired by his own experiences in the wild. He grew up in Yakima, Washington, hiking the foothills and peaks of the Cascade Range, and he sang the praises of nature throughout his life. "When one stands on Darling Mountain, he is not remote and apart from the wilderness; he is an intimate part of it," he wrote in a typical passage from his memoir, *Of Men and Mountains*. "Every ridge, every valley, every peak offers a solitude deeper even than that of the sea. It offers the peace that comes only from solitude."

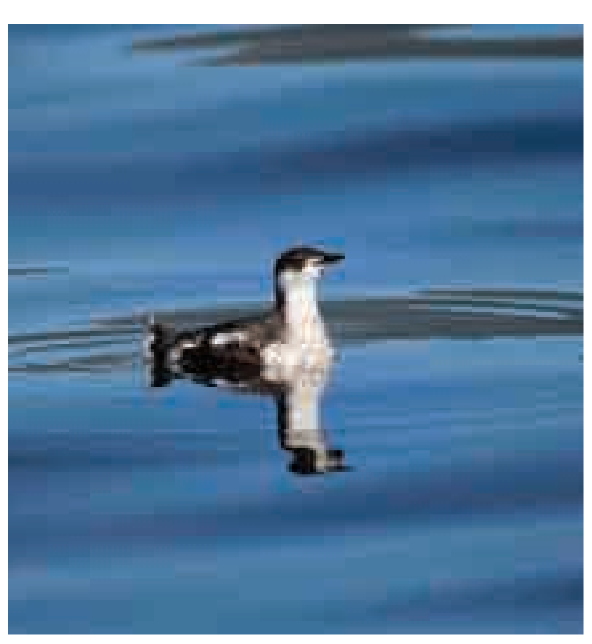
An intellectually restless man who wrote and traveled extensively, Douglas published five environmental books between 1960 and 1967. One of them, A *Wilderness Bill of Rights*, argued for a "Bill of Rights to protect those whose spiritual values extend to the rivers and lakes, the valleys and the ridges, and who find life in a mechanized society worth living only because those splendid resources are not despoiled."

In his dissent in the Sierra Club lawsuit, Douglas advocated for a federal rule that would allow for litigation "in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers and where injury is the subject of public outrage." The proper labeling of the case, he argued, should have been *Mineral King v. Morton*.

It wasn't a huge leap from other legal precedents. Douglas pointed out that both corporations and ships had long been parties in litigation, despite being artificial and inanimate. "So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland, or even air that feels the destructive pressures of modern technology and modern life," he wrote. Extending standing to the real party at risk of harm — the environment — would preserve "priceless bits of Americana" before they become "forever lost or are so transformed as to be reduced to the eventual rubble of our urban environment."

Douglas recommended accepting nature's rights — allowing nature's own voice to be heard in the courtroom — as a lasting way to shield wild places and processes from the ever-accelerating threats they faced.

His passionate plea didn't persuade his practical-minded judicial brethren, even if fellow dissenter Justice Harry Blackmun called it "eloquent" and insisted that Douglas read it from the bench. Yet Douglas' opinion influenced and inspired environmentalists at the time and ever since. The Wilderness Society published the "stirring" dissent, and Roderick Nash in his history of environmental ethics, *The Rights of Nature*, said that Douglas had "located the conceptual door



The marbled murrelet, northern spotted owl, and humpback whale, from left to right, have all been involved in court cases with help from humans.
JENNA CRAGG, RHETT WILKINS, NOAA

to the rights of nature." Michael Nelson, an environmental philosopher at Oregon State University, sees Douglas' dissent as "the cornerstone of a new environmental ethic, one premised upon empathy with the human and non-human world alike."

In the years since then, environmental groups have been able to sue on behalf of nature by demonstrating group members' legitimate interest in conservation issues or in places like Mineral King, a concept called associational standing. But despite Douglas' efforts, nature still finds itself marginalized in courtrooms. Much as a Catholic's confession must go through a priest, nature needs a mediator, a conservation organization.

Where all this leads is unclear. The courts themselves have never fully embraced the idea of nature's standing, but they've come close in the years since Douglas' dissent. This has been particularly true for endangered species like the marbled murrelet, the northern spotted owl and the coho salmon — all of which found themselves in court cases as co-plaintiffs alongside humans. Nature has yet to stand alone in court, however.

A decade ago, the 9th Circuit Court faced a test when a lawyer sued the president and secretary of defense on behalf of marine mammals, without a co-plaintiff — essentially the approach that Douglas had promoted. In *Cetacean Community v. Bush* (2004), the court emphatically rejected the species' legal standing, finding no evidence that Congress intended whales or dolphins to have it. The court found nothing preventing the legislative branch from deciding to grant animals statutory standing, however. Still, the prospect of today's Congress acting along those lines seems unlikely on ideological, political and practical grounds, and it's equally unclear that others — judges or policymakers — would agree that the notion passes constitutional muster.

And so it seems unlikely, at least for now, that Douglas' vision of nature as an entity with the right to sue will manifest in our courts. But does that matter? It depends on your criteria. The aftermath of the Supreme Court's decision in *Sierra Club v. Morton* helped establish standing for environmental organizations, thus facilitating environmental litigation. The court's opinion did not extend that right to natural objects, but Douglas' dissent nudged the courts toward recognizing nature's rights. This perspective pointed the way, according to legal scholar Christopher Stone, toward a new "level of consciousness" for the courts.

And so the debate about nature's standing then becomes a broader philosophical debate about law and what it can and can't, or should or shouldn't, do. Law is not intended to transform levels of consciousness or morality; it is a pragmatic discipline. As a practical matter, extending standing to natural objects may simply be unnecessary.

As a moral matter, however, the failure to acknowledge nature's rights frustrates legal and environmental activists and surely would have disappointed (though not surprised) Douglas, who retired from the Supreme Court in 1975, after a debilitating stroke, and died five years later.

Today, global climate change, biodiversity losses and habitat fragmentation are creating unprecedented social and ecological problems. Environmental crises require serious changes in governance and legal systems and, arguably, in morality. When organizations such as the Earth Law Center work to "advance legal rights for ecosystems to exist, thrive and evolve," or when Ecuador declares in its 2008 Constitution that nature "has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes," they are paying homage to Douglas' vision and implementing it in governing structures where law and morality may intersect.

"The idea that what many take to be inanimate objects (such as trees)," Nelson says, "or abstract ideas and the places we apply them to (such as wilderness) or even a 'symbol' (such as a river) can be wronged in some way, and therefore can be represented or spoken on behalf of, is brave and thoughtful. And the idea that those who know most about something and care most for it should be the spokesperson seems wise and helpful as we think about the future and what kind of people we need to be or create (a society) that can and should speak about tough natural resource issues in the uncertain future we all face."

Toward the end of his dissent, Douglas noted that well-meaning advocates often flock to the environmental issue *du jour*, an understandable tendency but one that cannot sustain environmental protection over the long run. "That is why these environmental issues should be tendered by the inanimate object itself," he wrote. "Then there will be assurances that all of the forms of life which it represents will stand before the court — the pileated woodpecker as well as the coyote and bear, the lemmings as well as the trout in the streams. Those inarticulate members of the ecological group cannot speak. But those people who have so frequented the place as to know its values and wonders will be able to speak for the entire ecological community."

Douglas' day may still come. In the meantime, though, we humans, or at least our organizations, will have to serve as acceptable stand-ins. ■

QUOTED

"God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools."

—John Muir

John Muir – the "Father of the National Parks" – was a naturalist, adventurer, author and early advocate of wilderness preservation, who went on to help found the Sierra Club. His eloquent writing continues to influence the modern environmental movement. *Suggested by Jerry Welsh*

"Simplify, simplify."

—Thoreau

When **Henry David Thoreau** published *Walden* in 1854, the notion of "sustainability" held none of its modern cachet. Yet Thoreau's account of building a cabin and living in the woods near Concord, Massachusetts, together with his keen-eyed exploration of the surrounding landscape, helped inspire the modern environmental movement. For him, nature was both an antidote to civilization and a glimpse of the divine, and in celebrating the ground beneath his feet, he proclaimed the value of wild places everywhere. *Suggested by Lawrence Walker*

"In the desert there is everything and there is nothing. Stay curious. Know where you are — your biological address. Get to know your neighbors — plants, creatures, who lives there, who died there, who is blessed, cursed, what is absent or in danger or in need of your help. Pay attention to the weather, to what breaks your heart, to what lifts your heart. Write it down."

—Ellen Meloy

Ellen Meloy wrote about dry places with a strong, distinctive lyricism and a refreshing sense of humor. She saw the irony in the pea-green lawns that dotted the arid landscape she loved but chose laughter over outrage. The Pulitzer Prize finalist was in the middle of her fourth book when she died suddenly at her Utah home in 2004. *Suggested by Amy Maestas*

DEFINED
Object oriented ontology
A philosophical school that rejects privileging human existence over the existence of nonhuman objects.

Hyperobjects

A new way to think about global warming

BY TIMOTHY MORTON

I'm an environmental philosopher. In 2008, I invented a word to describe all kinds of things that you can study and think about and compute, but that are not so easy to see directly: *hyperobjects*. Things like: not just a Styrofoam cup or two, but *all the Styrofoam on Earth, ever*. All that Styrofoam is going to last an awfully long time: 500 years, maybe. It's going to outlive me by a great extent. Will my family's descendants even be related to me in any kind of meaningful way by 2514? There is so much more Styrofoam on Earth right now than there is Timothy Morton.

I can't see it. I can't touch it. But I know it exists, and I know I'm part of it. I should care about it.

So hyperobjects outlast me, and they out-scale me in the here and now. Let's think of another example. Not just this one speck of plutonium, but *all the plutonium we've made, ever*. That plutonium decays for 24,100 years before it's totally safe. That's an unimaginable time. I can just about wrap my head around 500 years when I think about Styrofoam. But 24,100 years? Yet I'm obliged to act with a view to the people, whoever they are, who are alive at that point. Who knows whether I would even recognize them as human? Maybe by then we will have merged with a whole host of extraterrestrials. I don't know. I'm like Donald Rumsfeld and his "unknown unknowns": There are things I don't know about the future, and I don't even know how much I don't know about it. But it's coming.

Plutonium is a problem. Humans made it, so we're pretty much responsible for it. Beyond that, I can understand what plutonium is — which seems like a pretty good reason for assuming responsibility for something. Suppose I see someone about to be hit by an oncoming car. I can understand that she's about to be killed, so I'm obliged to step in and save her. Hyperobjects are like that — like the Dust Bowl, for instance, or the colossal drought in California. We are obliged to do something about them, because we can think them.

That's good news if you care about mitigating the effects of global warming. (I refuse to call it *climate change*. The globe is literally warming because of greenhouse gases.) Thinking ecologically about global warming requires a kind of mental upgrade, to cope with something that is so big and so powerful that until

Light Bulbs **depicts 320,000 light bulbs, equal to the number of kilowatt hours of electricity wasted in the United States every minute from inefficient residential electricity usage (inefficient wiring, computers in sleep mode, etc.).**
CHRIS JORDAN

WEB EXTRA To see more of Chris Jordan's art from his series "Running the Numbers," visit **www.hcn.org**.

now we had no real word for it. However, thinking of global warming as a hyperobject is really helpful. For starters, the concept of hyperobjects gives us a single word to describe something on the tips of our tongues. It's very difficult to talk about something you cannot see or touch, yet we are obliged to do so, since global warming affects us all.

Many people have told me, "Oh, now I have a term for this thing I've been trying to grasp!" We can see, for instance, that global warming has the properties of a hyperobject. It is "viscous" — whatever I do, wherever I am, it sort of "sticks" to me. It is "nonlocal" — its effects are globally distributed through a huge tract of time. It forces me to experience time in an unusual way. It is "phased" — I only experience pieces of it at any one time. And it is "inter-objective" — it consists of all kinds of other entities but it isn't reducible to them.

If you can understand global warming, you have to do something about it. Forget about needing proof or needing to convince more people. Just stick to what's really super obvious. Can you understand hyperobjects? Then you are obliged to care about them.

So hyperobjects are massively distributed in time and space and we are obliged to care about them, even if we didn't manufacture them. Take the biosphere. I can't see it. I can't touch it. But I know it exists, and I know I'm part of it. I should care about it.

Or global warming. I can't see or touch it. What I can see and touch are these raindrops, this snow, that sunburn patch on the back of my neck. I can touch the weather. But I can't touch climate. So someone can declare: "See! It snowed in Boise, Idaho, this week. That means there's no global warming!" We can't directly see global warming, because it's not only really widespread and really really long-lasting (100,000 years); it's also super high-dimensional. It's not just 3-D. It's an incredibly complex entity that you have to map in what they call a high-dimensional phase space: a space that plots all the states of a system.

In so doing, we are only following the strictures of modern science, laid down by David Hume and underwritten by Immanuel Kant. Science can't directly point to causes and effects: That would be metaphysical, equivalent to religious dogma. It can only see correlations in data. This is because, argues Kant, there is a gap between what a thing is and how it appears (its "phenomena") that can't be reduced, no matter how hard we try. We can't locate this gap anywhere on or inside a thing. It's a *transcendental* gap. Hyperobjects force us to confront this truth of modern science and philosophy.

It's like being inside the gigantic worm in *The Empire Strikes Back*. For a while, you can kid yourself that you're not inside a gigantic worm, until it starts digesting you. Because the worm is "everywhere" in your field of vision, you can't really tell the difference between it and the surface of the asteroid you think you landed on.

The person who denies there's global warming because he can still touch snow is partying like it's 1759. He's partying like modern science never happened. Modern science happened largely because of Hume, a Scottish skeptical empiricist. In another life, Hume might have been the bass player for Pink Floyd, because he certainly could have written some of the group's lyrics. "All you touch and all you see / Is all your life will ever be" — that's basic Hume right there. You can't know things directly; you can only know data. That's the foundation of modern science. Cause and effect aren't things that churn away underneath other things. They are inferences that we make about patterns we see in data.

Oddly enough, this makes modern science more accurate and honest than anything we've previously come up with. The thing is, statistical correlations are better than bald statements of fact that you just have to believe or face the consequences. ("The Earth is flat! God is this golden calf!") It's better to say that we're 95 percent sure global warming was caused by humans than to shout, "It was caused by humans, dang it! Just believe me!" You have some actual data to go on, in the 95 percent case. Try rolling two 10-sided dice and coming up with the numbers from 96 to 100. (As a recovering Dungeons & Dragons player, I know what I'm talking about here.) It's incredibly unlikely.

So hyperobjects are funny. On the one hand, we have all this incredible data about them. On the other hand, we can't experience them directly. We've stumbled upon these huge things, like Han Solo and Princess Leia and the giant worm. So we need philosophy and art to help guide us, while the way we think about things gets upgraded.

Human beings are now going through this upgrade. The upgrade is called ecological awareness. ■

QUOTED

"All the creatures on earth, and all the birds that fly with wings, are communities like you."
—Quran 6:38

Suggested by Shayan Ghajar

"It is not enough to fight for the land; it is even more important to enjoy it. While you can. While it's still here. So get out there and hunt and fish and mess around with your friends, ramble out yonder and explore the forests, climb the mountains, bag the peaks, run the rivers, breathe deep of that yet sweet and lucid air, sit quietly for a while and contemplate the precious stillness, the lovely, mysterious, and awesome space. Enjoy yourselves, keep your brain in your head and your head firmly attached to the body, the body active and alive, and I promise you this much; I promise you this one sweet victory over our enemies, over those desk-bound men and women with their hearts in a safe deposit box, and their eyes hypnotized by desk calculators. I promise you this: You will outlive the bastards."
—Edward Abbey

Edward Abbey inspired a generation of radical environmentalists with his spirited defense of wild places. His writing, rooted in the American Southwest, railed against government and corporate greed and its assault on the desert and canyon country.
Suggested by Jim Thurber

DEFINED
Anthropocene A proposed term for the epoch that began when humans started significantly impacting Earth's ecosystems.

A diver and thriving marine life at the bow of the USS Saratoga at Bikini Atoll. The ship sank during underwater bombing tests conducted by the U.S. military in the Marshall Islands. REINHARD DIRSCHERL/VISUALPHOTOS

Keeping the faith(s)

How belief plays into the new conservation debate

BY AMY MATHEWS AMOS

In November, 240 scientists figuratively joined hands to sign an opinion piece in the journal *Nature*, hoping to move beyond internal dissent about the best way to protect wild things — an age-old conservation debate that has resurfaced with renewed intensity in recent years.

The commentary was co-authored by Heather Tallis, lead scientist at The Nature Conservancy, and Jane Lubchenco, a renowned Oregon State University marine ecologist. In it, they accused their colleagues of promoting a false dichotomy: that we must conserve biodiversity either for its own sake or largely to benefit people. Instead, they argued, conservation science should embrace "a unified and diverse conservation ethic; one that recognizes and accepts all values of nature, from intrinsic to instrumental, and welcomes all philosophies justifying nature protection and restoration, from ethical to economic, and from aesthetic to utilitarian."

On the surface, this might seem obvious. Certainly for some of the signatories, it was an affirmation of a higher truth: People value biodiversity and wild places for many different reasons. But after more than 25 years as an analyst for the federal government and conservation groups and consultant to private foundations, I suspect that the fundamental conflict remains, especially for those who consider wild, naturally functioning ecosystems sacred. *Nature* commentary or no, they believe that putting humans at the center of biodiversity conservation will ultimately destroy Earth's coevolved Eden.

This divide has existed for many decades — at least since the days when Gifford Pinchot, the nation's first forestry chief, promoted sustainable use while preservationist John Muir championed national parks. But it emerged with renewed intensity in 2011, with the publication of Emma Marris' book *Rambunctious Garden.* Marris, a journalist, points out an awkward truth about modern conservation: Maintaining the "wildness" of a pre-European ideal takes a heck of a lot of artificial management. She notes, for example, that the National Park Service employs 16 exotic species management teams spread across hundreds of parks. And this kind of conservation will require even more heavy-handedness as the climate changes. Do we help species migrate to new locations, or do we let them sort it out themselves? Marris' solutions are more utilitarian than reverent. Novel, human-influenced ecosystems involving non-native species can be valuable, she believes, providing benefits such as habitat for endangered species, protection for soil and shade for vulnerable seedlings. Instead of fighting the constantly changing natural world, she urges conservationists to embrace it and find ways to make it work.

Rambunctious Garden caused a stir among traditional conservation biologists, most of whom seek to preserve a wild state of nature rather than prune it. The debate really caught fire in early 2012, when Peter Kareiva, the chief scientist of The Nature Conservancy, published a provocative essay for the Breakthrough Institute with his colleague, Robert Lalasz, and University of California-Santa Clara environmental science professor Michelle Marvier. Current approaches to conservation have failed to stem the loss of biodiversity, they charged, despite a tenfold increase in the number of protected areas worldwide since 1950.

Like Marris, they argued that preserving nature while the planet adds billions of people will require greater conservation focus on working landscapes — the farms, timber lots and urban areas that are currently gobbling up space. But they bumped up the rhetoric, criticizing protected areas for displacing indigenous

people, scolding icons like Henry David Thoreau for being hypocrites and challenging the notion that nature is fragile. (They noted, for example, that Bikini Atoll, the site of atomic bomb testing in 1954, supports more coral species now than it did before the bombing.)

The conservation movement has pitted people against nature, they claimed, and in the process, alienated would-be supporters. Environmentalists need to move beyond their focus on protecting biodiversity to providing ecosystem services, working with corporations to integrate the value of nature into their practices, and enhancing natural systems that benefit people to promote economic development for all. Doing otherwise, they stated, is unethical, given the billions living in poverty.

Traditional conservation biologists, who seek to preserve biodiversity, found these ideas heretical. Michael Soulé, professor emeritus at the University of California-Santa Cruz, shot back in the pages of *Conservation Biology*, a journal he helped found, calling Kareiva's approach "a radical departure from conservation." Soulé denounced the move away from protecting nature for its own sake and replacing wild places and national parks with domesticated landscapes. In a flurry of follow-up papers, he and others argued that the "self-centered dogma" of a human-centric approach and the false idol of limitless economic growth would fail to protect natural ecosystems in a world with finite resources. Their arguments were partly scientific but also reflected a fundamental disagreement over core values.

Current research, according to Soulé, supports the connection between biodiversity and ecosystem stability and productivity. Even if a damaged ecosystem can recover, extinction is permanent. But the arguments also reflect deep convictions about the intrinsic value of nature and the moral imperative to protect all species, regardless of their benefit to humanity. "I value, really value, things that have been evolving in a place for hundreds of thousands of years, are well adapted, that have mutualisms and complex relationships with other species," Soulé told me a few months after his editorial appeared. "It's emotional. I'm one of the few scientists who will admit that."

For the most part, the fire and brimstone has since died down. Kareiva and other "new conservationists" deny that they ever called for the abandonment of protected areas as a conservation strategy. Rather, they were simply proposing to expand the toolbox beyond protected areas to enhance natural values on the working landscapes in between. By including conservation projects that provide tangible benefits to people, they argue, conservation can cast a wider net of support.

Kareiva and Soulé added their names to the *Nature* piece soon after its publication. "I don't think anybody has just one set of values as a motivation in conservation," Kareiva told me. "I think (the issue is) painted as people who love the intrinsic value of nature versus people who love people. But I don't think anybody who is motivated by the intrinsic value of nature would want to harm people in the process."

But Soulé remains unconvinced that the conflict can be easily resolved. In the David and Goliath struggle between nature and people, he believes, people will always win. He signed the *Nature* paper, he said, because he agrees that it would be nice if we could all get along. But he fears that a human-centric world will lead to a "homogocene" in which the same few hardy species prevail in degraded habitats around the world, limited only by the gross parameters of climate, while ecosystems that persisted for eons perish.

I share his angst. Those of us raised in the conservation fold of the 20th century bowed to the greats: John Muir, Edward Abbey, Aldo Leopold. Their lofty (and sometimes rebellious) prose resonated with the deepest parts of our souls, validated our heartfelt beliefs, and inspired us to dedicate our lives to protecting Mother Earth. To many of us, there is something deeply spiritual and immeasurably sacred about preserving intact natural ecosystems created and shaped by forces we don't understand fully. It's an article of faith that goes beyond logic.

But I know from heated family arguments at holiday tables and long campaigns on Capitol Hill that not everyone shares my values. Surveys conducted on behalf of TNC confirm my observations. They suggest that, at least in the U.S., emphasizing intrinsic values is preaching to the choir — Democrats who already support conservation efforts — while emphasizing ecosystem benefits can appeal more to the right.

In practice, too, conservation has always reflected different goals and values. Theodore Roosevelt designated the first wildlife refuges to protect birds from the hat trade even as he was creating national forests to produce timber for industry. So I'm embracing the more universal notion tucked amid the otherwise polarizing words of the 2012 Breakthrough essay, that "conservation must demonstrate how the fates of nature and of people are deeply intertwined — and then offer new strategies for promoting the health and prosperity of both."

Surely, there are many paths to environmental salvation. Perhaps if everybody on Earth chose one of them, any one of them, we could begin to reclaim our diminishing Eden. ■

QUOTED

"One of the great dreams of man must be to find some place between the extremes of nature and civilization where it is possible to live without regret."

—Barry Lopez

One of the nation's leading contemporary nature writers, **Barry Lopez** examines the relationship between human culture and the physical landscape. His award-winning nonfiction books include *Arctic Dreams* and *Of Wolves and Men. Suggested by Meg Hards*

"We must define a story which encourages us to make use of the place we live without killing it, and we must understand that the living world cannot be replicated. There will never be another setup like the one in which we have thrived. Ruin it and we will have lost ourselves, and that is craziness."

—William Kittredge

William Kittredge stopped working on his family's eastern Oregon ranch and became a writer at the age of 35. He's since explored such themes as the legacy of agriculture in the West and the impact of ownership and dominion on the land and its people. Along with writing numerous essays, fiction and a memoir, he co-produced the Oscar-winning film based on Norman Maclean's story, *A River Runs Through It. Suggested by Ryan Dorgan*

"On the edge of the rushes stood the black-crowned night heron. Perfectly still. ... It will be this stalwartness in the face of terror that offers wetlands their only hopes. ... She was showing us the implacable focus of those who dwell there."

—Terry Tempest Williams

Activist and naturalist **Terry Tempest Williams** explores issues ranging from women's health and free speech to environmental justice and the connections between identity, memory and place. Her writing is deeply rooted in the sprawling landscapes of her native Utah, with its distinctive Mormon culture. *Suggested by Marcia Hanscom*

DEFINED
Tragedy of the commons
A dilemma of cooperation, wherein self-interest diminishes resources used by the masses.

Poisoning the well

Thinking of pollution as a trespass

BY BENJAMIN HALE

In 2013, Colorado Gov. John Hickenlooper sat before a Senate committee and testified to drinking a glass of fracking fluid, in an attempt to illustrate just how safe hydraulic fracturing can be. He hoped, presumably, to allay growing concerns in what has become one of the West's most contentious energy issues. But in doing so, the former geologist employed a basic assumption about wrongdoing that has long underlain the environmental debate. In my view, this assumption has done far more harm than good to the environmental movement.

Maybe you'd care to join Hick in his swashbuckling imbibition. I certainly wouldn't. Either way, it is easy to see how quickly this kind of discussion can spiral into a futile tug-of-war between two sides: One side insists that the practice is safe, and the other side insists that it's not. Almost all discussions of pollution — oil spills, gas leaks, nuclear contamination, water pollution — end up lost in the same eternal back-and-forth.

Many environmentalists will tell you that we should care about pollution because it threatens to degrade our environment and harm us in some palpable and important way. These statements reflect a much wider tendency within the environmental community to confuse *wrongs* with *harms*.

The so-called "harms view" associates environmental damage with environmental wrongdoing, meaning that the moral complications of pollution can be captured by describing its harmful effects. According to this way of thinking, it is enough to say that it is *wrong* to harm people by adding toxic substances to their drinking water.

But this view, in fact, is not the only way to understand fracking, or any kind

Heather McCartin, who lives in Salt Lake City, wears a breathing mask when she rides her bike during days that exceed acceptable pollution levels according to the Clean Air Act. She says driving her car to protect her lungs would only contribute to the problem.
KRISTIN MURPHY

of pollution. As far as I'm concerned, it's not even the best way to do so. There is a related but less common position that considers the moral complications of pollution not in terms of doing harm, but in terms of trespassing. And trespassing, particularly in the West, is something we can all understand.

According to the "trespass view," what is wrong with fracking — or any kind of pollution — isn't simply that it causes, or risks causing, harm to me and my family. It is that certain kinds of pollution harm me *without my authorization*, without clear justification. One might take this even further: It's not necessarily the harm done that does the moral work of distinguishing pollutants from non-pollutants. It is instead whether the introduction of a substance, or the alteration of a situation, impacts my life in a way that I can and will countenance.

Most of us would agree that it is wrong to harm people or degrade value, but I believe that understanding pollution as trespass is a more useful way to think of many environmental debates — and it might also help us understand why so many people are so viscerally upset about, say, fracking.

Just because there are some dangers associated with fracking does not mean we need to stop it entirely. There are dangers associated with a lot of things we do. And sometimes we agree that it is OK to inflict harm on a person — as when a surgeon operates to remove a kidney that someone is voluntarily donating to a sick person. Likewise, we sometimes willingly degrade value, as when we cut down trees near our homes to protect ourselves against possible forest fires. The difference is that these harms are deemed permissible by the people who are enduring them. These harms are not a trespass.

Consider the serious downsides of relying on the "harms view." It is predicated on the idea that one can determine the moral valence of an act by establishing whether its benefits outweigh the costs. Now imagine a scenario in which a fracking company decides to add fructose as one of the many secret ingredients in its fracking fluid. The benefits, after all, are obvious to anyone with a sweet tooth.

How odd would it be to read that Gov. Hickenlooper had not only poured himself a tumbler of the fluid, but also recommended it to his family? "Mmm. Delicious!"

The trespass view doesn't acknowledge this kind of complication. For example, the oil and gas industry recently launched a campaign to raise money for breast cancer by painting its drill bits pink. In principle, supporting breast cancer research is a noble thing to do, but when it comes from the fracking companies, it has the feel of "buying indulgences": doing good works in order to offset one's sins.

The reason that pink drill bits seem ridiculous is that offsetting harms or costs with benefits doesn't actually offset the moral burden of pollution. The trespass still exists. So the pollution debate is about more than safety. It is also about what kinds of substances we are willing to allow into our bodies, our communities and our environment, and about how we decide who we'll trust to handle those substances.

Objections to pollution are as often about preventing outsiders from polluting *our* water or *our* air, as they are about who gets to make these decisions. What makes it okay for Hick to pour himself a glass of fracking fluid is that *he* is the one who has authorized such drinking. If instead *I* had poured him a glass of fracking fluid and forced him to drink it against his will, or brewed him a cup of tea with fracking fluid and told him afterwards what I had done — "Gotcha!" — I am fairly certain he would feel differently about it. I might even end up in jail. This would be true, I believe, even if the fracking fluid turned out to be perfectly safe and magnificently delicious. Pollution, by its nature, engenders a kind of trespass: It violates the moral space of people without their authorization or good reason.

Clearly, there are middle-ground options that permit some level of industry activity and energy development in some environments, but also restrict it in others.

What makes the introduction of some "pollutants" permissible depends in large part on whether the public can and does accept those substances. Many people simply do not want anyone putting mysterious chemicals in their water supply. Equally so, many industry actors do not want the general public telling them how to do their business. Ensuring that the affected parties — both industry and private citizens — have space to voice their concerns can help us find some middle ground and develop mutually acceptable policies.

The safety discussion is necessary, for sure, and certainly may go a long way in alleviating any unfounded concerns about some of the substances that enter our environment. But it cannot go all the way. It cannot address the question of who is authorized to put which substances where. In a democracy, we have to hash these questions out through a legitimate, public, transparent decision-making process, determining together what we can countenance.

When Hickenlooper and industry advocates seek to reassure the public that fracking holds little risk, they miss the point. It's not simply that there are dangers to health, safety and environment, but that somebody somewhere else is making these decisions and altering the environment in ways that affect a lot of people, and the people who are most affected can do nothing about it.

Don't get me wrong. I'm not naive; I understand the practical difficulties of bridging this divide and bringing multiple voices to the table. Nevertheless, if we really want to overcome the current stalemate, we need to drill deep into the presuppositions that guide our thinking. Once we understand pollution as trespass, and see that it is as important to tackling the fracking debate as the concept of harm, we may finally be able to raise our glasses — *chin, chin*! — and drink together. Even if most of us pass on the fracking fluid. ■

QUOTED

"Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts. There is something infinitely healing in the repeated refrains of nature — the assurance that dawn comes after night, and spring after winter."

—Rachel Carson

Best known for her 1962 book *Silent Spring*, scientist and writer **Rachel Carson** brought environmental concerns into the consciousness of mainstream America. By spotlighting the ecological consequences of pesticide use, her work challenged the practices of agricultural scientists and the government and ultimately led to the creation of the Environmental Protection Agency. *Suggested by Joanne Morris Gores*

"For a long time I realized I had only paid attention to the predators, the scavengers, and the birds that were good to eat and the birds that had to do with hunting. … This looking and not seeing things was a great sin, I thought, and one that was easy to fall into. It was always the beginning of something bad and I thought that we did not deserve to live in the world if we did not see it."

—Ernest Hemingway

Although he's rarely thought of as an environmental writer, **Ernest Hemingway** anchored much of his work in the natural world. His interests went beyond big-game hunting and bullfighting to celebrate outdoor life in the American West, where he was an avid fly fisherman. In his acclaimed short story, *Big Two-Hearted River*, Hemingway perceives nature as an antidote to the trauma of war. *Suggested by Jeff Foster*

DEFINED
Instrumental value A state of affairs that creates another value, opposed to intrinsic value, which is valuable for its own sake.

Beyond greenbacks

Should we put a price on nature?

BY BEN GOLDFARB

"When we're talking about what the future will look like, most of the estimates that interest decision-makers have nothing to do with dollar values."
—Spencer Wood, marine ecologist

The west coast of Vancouver Island boasts the kind of wild shoreline that could swallow a kayaker for weeks. Crenellated with fjords and stippled with islands, it's a place where old-growth stands of Doug-fir yield to rocky beaches, where black bears stalk the tidelines, and where, each March, some 20,000 gray whales cruise by en route to the Bering Sea. Yet even in this natural outpost, human enterprises clash: Cargo freighters and commercial fishermen spar over shipping lanes and fishing grounds; salmon farmers and kayak guides struggle for control of coastal waters; logging, mining and resort-building threaten seagrass beds.

"No one wants to go out there and wreck stuff," Andrew Day, managing director of West Coast Aquatic, a local management board, told me. "But they disagree on the level of restriction that should be imposed to achieve different goals." Anyone who's taken part in a natural resource dispute will recognize the problem. How do you resolve all these conflicts?

In 2010, Day got help from the Natural Capital Project, a Stanford-based cadre of economists, biologists and software engineers whose work meets at the increasingly crowded intersection of ecology, technology and finance. NatCap was founded in 2005 in order to tackle the very quandary faced by West Coast Aquatic — how to juggle clashing human and natural values. To clear up such dilemmas, NatCap's scientists use their diverse talents to consider a question that seems simple but is actually bafflingly complex: What is nature worth?

NatCap wasn't the first group to address the problem. In 1997, a team of researchers pinned nature's economic value at $33 trillion worldwide — nearly twice the global gross domestic product, or GDP. That immense value flows from ecosystem services, the natural benefits provided by everything from water-filtering shellfish to soil-forming microbes to storm-buffering reefs. The solution to ecological woes, many policymakers have concluded, lies in incorporating nature's dollar value into decisions. Put a price on ecosystem services, the wisdom goes, and watch the polluters, over-fishers and developers fall into line.

Humans' material reliance on the planet is undeniable, but shoehorning nature into modern capitalism makes for an uneasy fit: Our economy's rapacity is arguably the reason we live in a time of environmental crisis in the first place. The challenge for ecosystem services, then, is to demonstrate our relationship with the natural world without letting its parts be bought and sold like scrap. To that end, as groups like NatCap are figuring out, sometimes the best way to calculate nature's value doesn't involve dollars after all.

THE SCIENTIFIC LITERATURE is strewn with ecosystem appraisals. Bats provide up to $50 billion annually by eating insects; insects offer $57 billion by disposing of waste, pollinating crops and feeding fish and game. Beavers in Utah's Escalante River watershed have the potential to provide hundreds of millions of dollars in flood control and other services. The humble street trees of Corvallis put $4 million in Oregonians' pockets. The Colorado River Basin is worth up to $500 billion every year.

But do these astronomical figures help? In theory, sticker shock can influence hearts and minds — "a gee-whiz way to get people's attention," as Mary

Starfish near a dock at low tide, Vancouver Island, Canada.
JURGEN FREUND/AURORA PHOTOS

Ruckelshaus, one of NatCap's directors, put it. Huge numbers are meant to convince folks who lack innate tree-hugging tendencies that beavers are more valuable as aquatic engineers than as, say, fur hats. In practice, however, such valuation has fostered more acrimony than consensus. To those environmentalists who keep John Muir on their nightstand, simply being a beaver — or a warbler, skink or pikeminnow — justifies protection.

"In many ways, those early dollar values did a disservice to the concept," Ruckelshaus said. "They caused a backlash: 'How can you put a dollar value on nature? It's priceless, it's sacred.' I understand that."

Despite such reservations, ecosystem services have graduated from a rhetorical device into a conservation tool. Denver Water and the U.S. Forest Service, for example, cut a $33 million deal to manage the forest that supplies the city's water; the utility paid for restoration activities like dead tree removal and beetle mitigation by levying fees on customers. Bellingham, Washington, charges ratepayers to buy land around Lake Whatcom to protect their own water; Medford, Oregon, pays farmers to plant riparian trees that keep streams cool for salmon. The arrangements keep getting more creative: Ducks Unlimited recently sold 40,000 tons of carbon credits to Chevrolet, which will pay farmers not to till grasslands that store carbon and harbor waterfowl.

Not every market-driven conservation project is a winner, though. Take stream mitigation banking, in which restoration companies earn credits by repairing degraded streams, then sell those credits to anyone — logging companies, hotel builders, transportation departments — who expects to damage nearby habitat. The idea is that the free market will improve restoration's efficiency. But according to Indiana University geographer Rebecca Lave, private enterprise and rivers don't always mix. "For the market in stream credits to work, there has to be a defined commodity," Lave told me. But unlike gold or wheat, streams are inherently dynamic — they shift channels, rearrange boulders, build islands and wash them away. That protean nature frustrates evaluation. "If a stream is changing, regulators have no way to certify whether it's OK or not," she said.

The result is that stream mitigation projects tend to promote stable channels — good news if you're a government accreditor trying to create a salable unit, not so good if you hope to restore the life of a river. What's best for the market isn't what's best for the watershed. "We don't have happier, healthier streams because we have markets for them," Lave said. "Mitigation banking has allowed the status quo to continue."

HOW, THEN, MIGHT WE BETTER USE ecosystem services for conservation? NatCap's work with West Coast Aquatic on Vancouver Island could represent one path: a deployment of the concept that doesn't revolve around money.

Picture Vancouver's Lemmens Inlet, a branching, limpid bay dotted with houseboats that empty their toilets directly into the ocean. That's a problem, because the inlet's other inhabitants — kayakers, oyster farmers and native gatherers of wild clams — don't exactly welcome the untreated sewage. So NatCap modeled how ecosystem services would change under two different management plans: One, a "development scenario," in which houseboats and oyster farms increased; and the other, a "conservation scenario," in which the inlet was zoned as a marine park. Under the conservation scenario, kayaking access would increase by more than 50 percent, and water quality by over 30 percent; under increased development, oyster harvest would rise but water quality would decline. Importantly, while NatCap's models did affix a dollar value to shellfish harvest, benefits like clean water and kayaking opportunities were expressed using other metrics — namely, the concentration of bacteria and the extent of paddling routes.

Ecosystem services loom large in the theatre of ideas — savior to some, bogeyman to others. As practiced by NatCap, however, they're just another factor in West Coast Aquatic's planning process. And though ecosystem services has become synonymous with money in the popular imagination, NatCap's clients usually aren't interested in currency. Many Native Vancouver Islanders, for instance, regard shellfish gathering as a cultural amenity, not a pecuniary one. Slapping a price tag on it would be beside the point. "When we're talking about what the future will look like, most of the estimates that interest decision-makers have nothing to do with dollar values," said Spencer Wood, a marine ecologist who helped lead the project.

Ecosystem services may never be perfectly equipped to save biodiversity. Not every species is a crucial rivet holding aloft the machine of civilization: After all, forests can filter water and store carbon without any help from wolverines. But as Wood will tell you, there's room in NatCap's models for wildlife — as long as the folks calling the shots value its survival. Whether we rely on traditional or new forms of conservation, our ability to coexist with fellow creatures is fundamentally a matter of human will. There's no way around it. "Just like access to clam beaches was important to them, so was having whales and eelgrass beds," Wood said. "To me, there's no conflict there."

Last year, NatCap withdrew from Vancouver Island, leaving behind its models and maps for West Coast Aquatic's use. Andrew Day and his constituents are still figuring out how they want to use all that science; inevitably, they've adopted some pieces and dropped others. Among the abandoned models are the black-and-white scenarios labeled "conservation" and "development." "We want to build relationships, rather than push sectors into artificial camps," Day said. "You can fall into a polarization trap: 'Do we take an action out of a belief in the intrinsic value of nature, or for totally mercantile self-serving reasons?' Well, why not use whatever motivation you can find?" ■

QUOTED

"We simply need that wild country available to us, even if we never do more than drive to its edge and look in. For it can be a means of reassuring ourselves of our sanity as creatures, a part of the geography of hope."

—Wallace Stegner

Often called the "Dean of Western Writers," **Wallace Stegner** is best known for his biographies of John Wesley Powell and Bernard DeVoto, and for his acclaimed novel *Angle of Repose*. His conservationist manifesto, *Wilderness Letters*, helped lead to the passage of the landmark National Wilderness Preservation System in 1964. *Suggested by Matthew R. Durrant*

"Places matter. Their rules, their scale, their design include or exclude civil society, pedestrianism, equality, diversity (economic and otherwise), understanding of where water comes from and garbage goes, consumption or conservation. They map our lives."

—Rebecca Solnit

San Francisco-based writer and activist **Rebecca Solnit** is the author of 15 books, ranging from meditations on landscape and community to art, politics and the power of stories. Underlying all her work is a love of wandering, a delight in the many ways in which a person can, and should, get lost – both in the natural world and inside the self. *Suggested by Derek Young*

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NEW ARCHITECTURE ON INDIGENOUS LANDS,
Joy Monice Malnar & Frank Vodvarka
University of Minnesota Press, 2013
272 pages with 20 black-and-white illustrations, 20 black-and-white plates and 155 color plates. $39.95 softcover, $120 hardcover.

In 1996, government housing policies on tribal lands became more flexible, inspiring the creation of a new kind of modern architecture. No longer bound by federal rules of housing and design, Native communities were able to complete buildings and spaces that were more reflective of their own cultures. In *New Architecture on Indigenous Lands*, Joy Monice Malnar and Frank Vodvarka have assembled a cogent collection of those designs and the principles behind them. Malnar, a professor of architecture at the University of Illinois at Urbana-Champaign, and Vodvarka, a fine arts professor at Loyola University Chicago, go beyond the subject of design to consider the culture and tradition behind it. It's a small antidote to the lament of Black Elk, a Lakota holy man: "The Wasichus have put us in these square boxes. Our power is gone and we are dying, for the power is not in us anymore."

Storytelling Room oculus at the Senator John Pinto Library at Diné College, right. The central structure at the Southern Ute Cultural Center and Museum, below, was designed to evoke elements of a wickiup.
FRANK VODVARK, RIGHT; SCOTT SMITH, BELOW

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Farewell to Theo Colborn

Theo Colborn, an influential environmental scientist, died Dec. 14 at age 87, in Paonia, Colorado. After spending years as a pharmacist and sheep farmer in western Colorado, she decided to study watershed science, earning her doctorate at 58. Her Great Lakes doctoral research found manmade chemicals harming fish and wildlife; the findings helped introduce scientists and policymakers to the consequences of endocrine disruption.

Theo worked as a congressional research fellow and then a scientist for the World Wildlife Fund in Washington, D.C., and helped organize the first gathering of researchers studying endocrine-disrupting chemicals in 1991.

Her 1996 book, *Our Stolen Future*, coauthored with J. Pete Myers and Dianne Dumanoski, explained how chronic exposure to chemical compounds in flame retardants, pharmaceuticals and fragrances is stunting human development and increasing the incidence of cognitive and behavioral disorders, infertility, thyroid problems and cancers. In 2003, Theo founded The Endocrine Disruption Exchange (TEDX), a research clearinghouse. She received many awards for her work, including the TIME Global Environmental Heroes award, in 2007, and the Jonathan Foreman award from the American Academy of Environmental Medicine, in 2014.

"She was a visionary," says Carol Kwiatkowski, executive director of TEDX, "(with a) commitment to uncovering the truth and sharing that information."

CORRECTIONS

In our Dec. 22 issue, the cover story, "The Dust Detectives," left off a portion of the name of the institution employing atmospheric chemist Kimberly Prather: The Scripps Institution of Oceanography at the University of California, San Diego in La Jolla. The article "Descent through time" mistakenly identified Georgia Tech paleontologist Jenny McGuire as Jess Miller-Campe. On the Letters page, the Stevens cartoon wasn't quite as funny as it should have been, since the words dropped off when we placed the final art. See the full cartoon below.

Alert reader John Karon of Albuquerque, New Mexico, sent us a note about our obituary for activist Martin Litton: "I am likely the 1000th person to send in the correction that Martin was NOT the oldest man to raft the Colorado through Grand Canyon, but the oldest to row his own dory through the Canyon." Thanks, John.

The restoration project map in our Dec. 8, 2014, cover story "The Great Salmon Compromise" had a typo and a misplaced label. The Pend Oreille River comes out of Lake Pend Oreille in Idaho, but it enters the lake as the Clark Fork.

In our Nov. 24 story on trains carrying crude oil, "a sunny weekend afternoon in July" became one in September, due to an editorial mixup. *HCN* regrets the errors; we all got nice big lumps of coal in our stockings.

—Joshua Zaffos and Jodi Peterson for the staff

"Your meal will be out shortly. The salmon was a little wilder than we anticipated."

STEVENS / THE NEW YORKER COLLECTION / WWW.CARTOONBANK.COM

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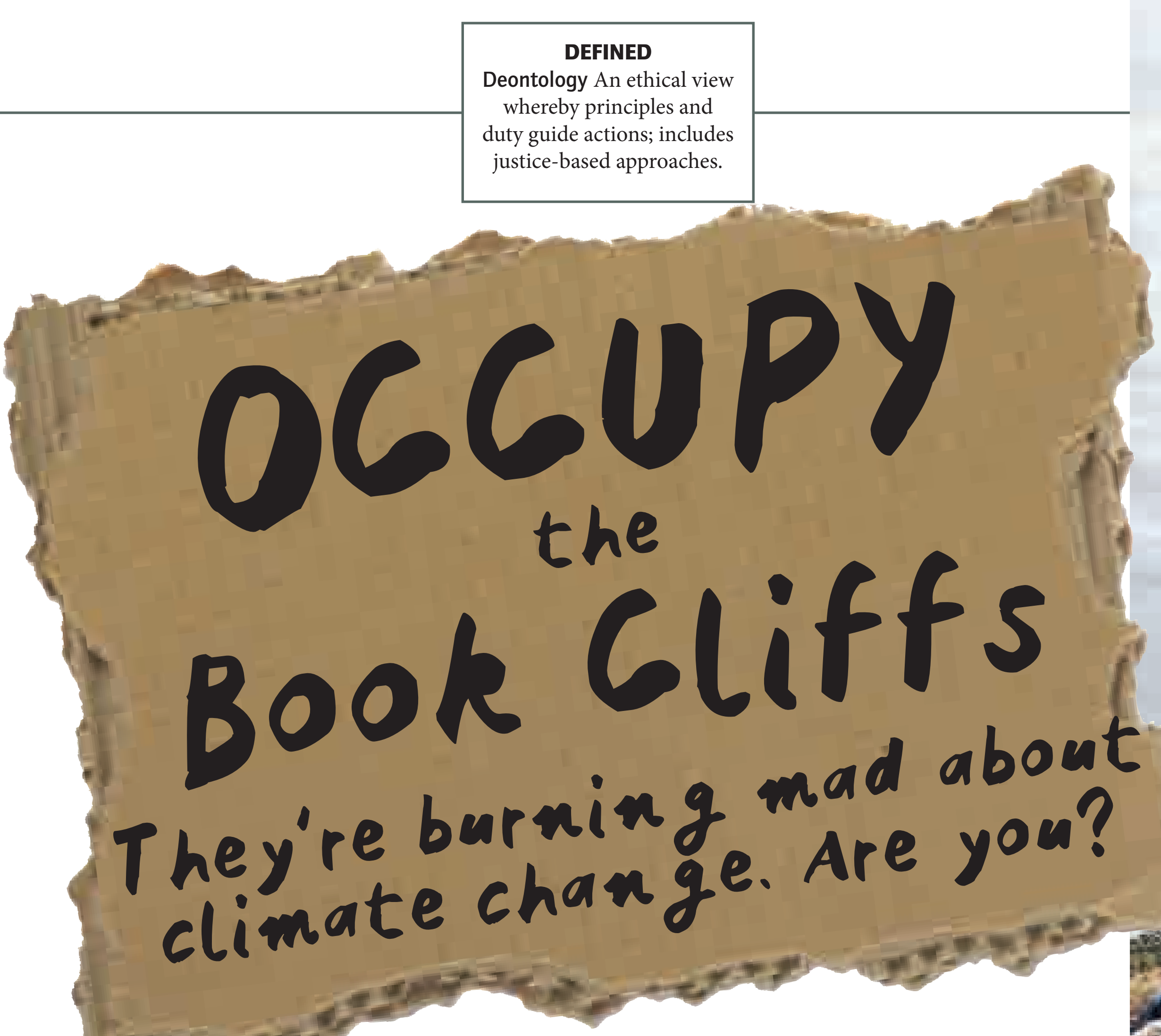

OCCUPY the Book Cliffs

They're burning mad about climate change. Are you?

ESSAY BY CALLY CARSWELL

Starting last May, a small group of radical climate activists, mostly from Salt Lake City, spent five months camped on the East Tavaputs Plateau, a jumble of conifer-choked canyons and broad sandstone and shale ridges in eastern Utah commonly known as the Book Cliffs. In the beginning, they adhered closely to Bureau of Land Management rules: They moved camp every 14 days, packing up tents, sleeping bags and camp chairs; the makeshift toilet, nicknamed "dirty Herbert" after Utah's governor; and a hanging sweater rack repurposed into a lending library, which included literature by Toni Morrison and Louise Erdrich along with nonfiction on oil, imperialism and anti-coal activism. Flies found them quickly at many new spots, and they'd spend a couple of insufferable days swatting thin air. Then, the bugs seemed to dissipate, perhaps thanks to bats.

As the months wore on, their diligence about relocating exactly on time faltered slightly. But in theory, it was important to do so, and generally to keep everything about camp aboveboard, because the things they did outside of camp weren't always, and they didn't need additional scrutiny.

The activists called their camp a "permanent protest vigil," its purpose to monitor and impede construction of what could become the first tar sands mine in the U.S. They have stood in front of and locked themselves to heavy machinery. Once, they dressed up as chipmunks and chased road graders around a construction site. At least one woman trespassed regularly into the mine's test pit, to see if there was anything worrisome worth documenting.

The September weekend that I dropped in, the activists were hosting a special campout to encourage locals to "connect with the land." After a long drive on winding backroads, I found the camp on the shoulder of a sweeping ridge, hidden among a stand of pine and fir. Tents pincushioned the forest floor on either side of a slim spur crammed with cars and pickups and ending in a tight turnaround — a cul-de-sac in the woods. The days I was there, activists wore jeans, T-shirts, fleece, clogs and hiking boots. People read books around the fire-pit, and lounged in the kitchen, an elaborately tarped affair with a spice rack and serving buffet. They slept in, brewed endless pots of coffee, and told camp tales: of encounters with bears, hikes gone awry, epic meals prepared and eaten (one involved cashew cream sauce). It felt pretty laid-back for a hotbed of radicals intent on revolution. Then again, it was the weekend.

On Saturday morning, with the wind calm and temperature pleasantly climbing, I joined the "morning circle" — around 15 people, sitting in camp chairs or on five-gallon buckets or in the dirt around smoldering coals. Each person introduced themself, and gave their preferred gender pronoun — he, she or they — which everyone was asked to respect. Vigil stalwart Raphael Cordray, who once owned a gift shop for radicals in Salt Lake, volunteered to lead a tour of the test pit. Chad Hamblin, a high school science teacher, offered to lead a nature hike. Kathy Albury, a member of the environmental ministry at Salt Lake's Unitarian Church, wanted to march on Sunday, the same day demonstrators would clog Manhattan for the People's Climate March. Rachel Carter, also from the Salt Lake area, agreed: "These sources of extraction are where people should be marching," she said, and suggested a hashtag: #comeherenextyear.

Then it was on to explaining "camp norms," which were scrawled in colored

Protesters disrupt construction of the road to the tar sands project in the Utah Book Cliffs in July 2013.
PEACEFULUPRISING.ORG

marker on a cardboard sign hanging from the food trailer: Don't talk to the cops; no racism, sexism, transphobia or other forms of bigotry; no violence of any kind. Also, "no pants at the fire pit" — code for no cell phones, which could be tapped by police, the FBI, or other Big Brothers. Welcome to the resistance.

I FIRST HEARD OF THE VIGIL in July 2014, after reading a newspaper story about one of its rowdier moments. It came after a weeklong campout, when 80 or so people came to the Book Cliffs to learn about community organizing, nonviolent direct action and "climate justice" — the idea that climate change solutions must alleviate the social and environmental burdens our energy economy disproportionately imposes on the world's poorest, usually non-white, people.

Before dawn on July 21, a group of activists had made their way to a fenced lot where U.S. Oil Sands, the mine's developer, kept its heavy machinery. Their goal: to stop construction for the day. Though sheriff's deputies were camped out there, a few activists slipped in and locked themselves to the equipment. Around 20 others linked arms and stood or sat outside the fence, blocking the road. By the end of the day, deputies had carted 21 people off to the Uintah County jail.

Reading about it brought me back to a crowded theater in Paonia, Colorado, where in 2013 I watched the documentary *Bidder 70*. It tells the story of Tim DeChristopher, a University of Utah student who, in 2008, made bids at a BLM oil and gas lease sale, driving up prices and winning 14 parcels he did not plan to drill, worth $1.8 million he could not pay. DeChristopher spent 21 months in federal prison, becoming a minor folk hero in the process.

I remember being impressed by DeChristopher's eloquence and unbending adherence to his principles. He deliberately broke the law to keep the oil and gas in the ground — to prevent the greater crime of more carbon pollution, he said — and refused a plea bargain. But there was something disquieting about his story and the images of his comrades storming the Interior Department in Washington and getting arrested; weeping outside the Salt Lake courthouse after his sentencing, sitting in the street, refusing to move, getting arrested. Climate change stirred something in him — in them — that it had yet to stir in me. Anger, maybe? Passion? I wasn't sure. But it was an emotion I didn't recognize in myself, or in most of my friends.

Which left me feeling conflicted. I'm an environmental journalist, well informed on climate change. I write stories about the science, which keeps getting worse, and the policy, which keeps standing still. I write about irrevocable changes to the mountains and deserts I love, and about how drought and heat could render some of them uninhabitable. I know the climate crisis is big and bad. And yet I don't get angry about it,

New York City street art featuring Tim DeChristopher, who became famous for bidding on parcels at a BLM oil and gas lease auction that he never intended to drill. WALLY GOBETZ, CC VIA FLICKR

not *really* angry. Neither do most of my well-informed and idealistic friends. But shouldn't we?

Reading about the U.S. Oil Sands lock-in, and remembering DeChristopher's story, made me curious about what was brewing in the Book Cliffs. Did these people know something I didn't? More to the point, did they feel something I didn't?

AFTER SATURDAY'S MORNING CIRCLE, I piled into a big white van with seven others to tour the mine's test pit, a few minutes down Seep Ridge Road, which was in the process of being widened and paved for future industrial traffic. At the pit, vegetation had been cleared, a berm cut into the ridge, and a hole dug, exposing brown, gray and ebony rock layers. Rainwater had created a pond the color of dark tea, where Raphael Cordray said she had seen cows drinking. She suspected it was toxic.

The tour was for outsiders (mainly me) and visitors from the nearby Uinta Basin who opposed the mine but came up only occasionally. There was Stagg, who goes by one name only, along with David Bell and Lori Savage. They all lived around Roosevelt, Utah, population around 7,000, some 90 miles away. Hamblin, the science teacher, also from the Roosevelt area, was up for his third campout and brought his dad. He was excited to meet like-minded neighbors; environmentalists are few in the Uinta Basin, home to Utah's top oil and gas producing counties. Still fewer are those willing to speak out against energy development. "It feels like the Lone Ranger out there sometimes," he lamented.

U.S. Oil Sands, a Canadian company, had secured permits and leases on state trust land, leaving environmentalists without legal leverage to stop it. Now, the company was clearing a building site for a processing facility, aiming to begin commercial production in 2015. CEO Cameron Todd told me the company respects the activists' right to voice their opposition, but that their tactics sometimes crossed the line and posed safety risks. He said his company is willing to engage anyone interested in figuring out better ways to do things, but added, "There's not much of a dialogue (you can have) with people who just don't want things to happen."

The construction activity was at the building site, but there were actual tar sands to see at the test pit. A future mine was easier to imagine here. On the south-facing slope below the pit, thick, jet-black goo oozed from rocks, forming drip patterns like coagulating blood, with the dry, oppressive smell of fresh asphalt.

As others scrambled downslope to check out erosion and fossils, Hamblin and I lingered on the rim. A tall, solid man with a full beard and lively eyes, Hamblin had an encyclopedic knowledge of plants and animals. Zeal for nature burst from his lips like light from a sparkler. He snapped photos, calling out that he had casting equipment if anyone found animal tracks.

The night before, he'd sported a "Bidder 70" baseball cap — a nod to the DeChristopher film. Like some others, DeChristopher was part of the reason he was here. In 2011, he spent a weekend camping around Dinosaur National Monument, where he ran into an acquaintance who said that his camping spot would have become a "big oil well" if not for DeChristopher. That inspired him to later drive two-and-a-half hours to Salt Lake to see the movie, which is where he met some of the activists and learned about the tar sands development.

Hamblin bemoaned what he saw as the loss of public-land access to energy development. He recalled a university lecture about permafrost thawing: "I was the only member of the public who came," he said. "It was like, 'Wow, she's saying a lot of what's going on is not reversible.' I like to cross-country ski, and climate change is making it so there's less snow and more rain. I'm concerned on a lot of levels."

Soon, we climbed back in the van, and bumped down the road to see the scar of a failed 1980s mine. I asked why they called the camp a "vigil." Lionel Trepanier, co-founder with Cordray of Utah Tar Sands Resistance, one group behind the protest, explained that "vigils" were considered by courts to be constitutionally protected free speech. "Although there are tents and a kitchen, this isn't camping," he said. "The vigil is the presence."

"So is it like being a witness?" Hamblin asked. Yes, several people replied.

"If we're here and witnessing what's going on, then we'll know other ways to respond," Corday said, adding that their presence draws attention to the little-known mine. "And it creates a place people can come and learn about the issues. It's a safe place if they want to show their discomfort and not be arrested."

THE NUMBER OF PEOPLE willing — even eager — to risk arrest trying to stop fossil fuel developments is still small. But it seemed notable to me that they existed at all.

The same month Tim DeChristopher went to prison, in 2011, 1,200 were arrested in Washington, D.C., protesting the proposed Keystone XL pipeline, which would carry Canadian tar sands to Gulf Coast refineries. Keystone helped galvanize the national climate movement, thanks to organized opposition from the tribes, ranchers and farmers whose land it would cross, and from prominent activists like former NASA scientist James Hansen. Protests small and large, in Washington and elsewhere, have followed the 2011 demonstration. Getting at tar sands and making the oil takes a massive amount of energy, making the fuel hugely carbon intensive. "If Canada proceeds, and we do nothing," Hansen wrote in *The New York Times* in 2012, "it will be game over for the climate."

But there are mini-Keystones all over — smaller pieces of less politically and environmentally significant infrastructure that are the foundation for a rush on fossil fuels right here at home, including tar sands. Grassroots activists have taken notice, loudly opposing developments of all sizes and consequence.

In Massachusetts, a coalition aims to stop all new fossil fuel infrastructure, including three gas-fired power plants and one pipeline expansion. Massachusetts activists were among those who blockaded the Federal Energy Regulatory Commission's offices for a week in the fall. More than 100 were arrested in D.C. and related protests, according to organizers. A Michigan man was recently given a suspended two-month jail sentence and one year of probation after being convicted of a felony for skateboarding inside an unfinished pipeline and refusing to leave.

Participants in the 2014 permanent protest vigil at the tar sands pit, top, where some concealed their identities as they trespassed onto the mine property. At left, one of the campsites for the months-long protest. Camps were packed up and moved about every two weeks, in accordance with BLM regulations.
COURTESY TAR SANDS RESISTANCE AND MELANIE MARTIN

In upstate New York, locals have blocked the entrance to a gas storage facility since October, protesting a FERC-approved expansion. At press time, 170 had been arrested.

My question was not whether the activists in Utah or these other incidents were right, wrong or somewhere in between, or whether in each case their tactics were justified or strategic. I wanted to know what motivated them. Civil disobedience involves some level of personal risk, and people wouldn't engage in it, I assumed, without feeling a powerful emotional involvement; the kind of intellectual response many of us have to the climate crisis is simply not enough.

"Be as frank as possible," an editor at *High Country News* advised before I began reporting. "They're not like regular people. They're not just saints. They have a certain personality."

"NATURE WALK DEPARTING!" crowed a few not-just-saints in unison, standing by the campfire, lit despite Saturday evening's lingering warmth. Hamblin led a group down a trail and into a stand of Doug-fir, piñon and juniper, carrying a shepherd's crook in one hand, a camera carabineered to his shirt. He wondered aloud if finding threatened or endangered plants might help stop the mine.

We lingered on a southerly slope, under a haggard old piñon, its roots snaking out from the tan soil as though coming up for air. Among them, we discovered an antlion, an insect whose predatory larvae bury themselves in sand, awaiting prey. We poked its pit with a twig, which it attacked, provoking *oohs!* and more pokes.

I wandered back uphill to camp with Rachel Carter, a dedicated member of Peaceful Uprising, a Salt Lake climate justice group sponsoring the vigil. It was co-founded by DeChristopher after the BLM auction and has continued working locally, though he moved out of state to attend Harvard Divinity School. Carter wore a shaggy pixie cut and army-green pants. Her black T-shirt with its cut-off sleeves proclaimed: "I Am The Carbon Tax."

Though Carter didn't spend all season here, she frequently delivered food that Salt Lake supporters donated and foraged from suburban grocery dumpsters, and joined for special campouts. I asked her why she joined Peaceful Uprising and was surprised to learn she was relatively new to environmentalism and radical activism, if not unfamiliar with it. Her Mormon parents were members of the ultra-conservative John Birch Society, which fought communism and the civil rights movement in the 1950s and '60s. She joined at 15 and was raised believing Joseph McCarthy was a hero. But as she grew older, she became uncomfortable with her family's politics. She moved to Seattle and "was liberalized but not activated," as she struggled to sort out her feelings on Mormonism. "My approach for a long time was just no involvement with anything," she said.

In 2008, she moved back to Utah, right after Proposition 8, which sought to ban same-sex marriage, passed in California with hefty support from the Mormon Church. Carter, who had left the church, was incensed that it had entered politics "in a way that fucked a lot of people over." A rare protest was held outside the Salt Lake Mormon Temple just before she moved home. Then DeChristopher went to the BLM auction. "There was a lot happening, and it was exciting," she told me. "There's something about being an under-

MYCHAYLO PRYSTUPA, VANCOUVER OBSERVER

COURTESY GREAT PLAINS TAR SANDS RESISTANCE

"Every successful social movement in our history has been unrealistic. Even people who were anti-slavery thought abolitionists were completely nuts."

—Tim DeChristopher, activist who went to federal prison after bidding on BLM oil and gas leases

dog that engages me. Democrats being an underdog in Utah, I was interested in trying to help change that."

She volunteered with LGBT advocacy groups and worked with the Utah Democratic Party. In 2010, she got involved with people in Peaceful Uprising after DeChristopher posted an ad on Craigslist seeking a "courageous congressperson" for Utah's 2nd District. He and his cohort were fed up with conservative Utah Democrat Jim Matheson, who had voted against health-care reform and cap-and-trade. So they decided to "hire" his replacement. "Must have solid moral values and a resistance to selling out to corporate interests," the ad said. Job responsibilities included "stopping catastrophic climate change" and "ending imperialistic wars of aggression."

At a local library, Carter watched while select "applicants" answered questions. That night, a candidate was chosen. "There wasn't a ton of overhead and bullshit and bureaucracy," she said. "And it was just a lot of fun." She worked on the campaign (it failed after forcing Matheson into a runoff), and about six months later, helped prepare for DeChristopher's trial.

"The climate end of it was not one of my main reasons for getting involved with Peaceful Uprising," she said, as we stood on the edge of camp. "It was more about the culture of the group and what they were creating. It was a really creative, energetic group of people."

I heard a similar story from Jesse Fruhwirth, a member of Peaceful Uprising and vigil keeper, who was among the 26 in court this month. In early 2011, he was a reporter for *City Weekly*, Salt Lake's alternative paper, covering criminal justice, homelessness, DeChristopher's trial, and a 2011 effort by the Utah Legislature to gut open-records laws. It was the first time his editors allowed him to "throw objectivity to the wind and be blatantly biased toward open access," he told me in a phone interview. "I felt like in real life I was a polarizing firebrand, but that journalism snuffed that out. Not everyone has that, and I feel like it's the best thing I've got."

By the spring of 2011, though, Fruhwirth was feeling burnt out, and thought his body was showing signs of stress. Once, when someone hugged him, he said, it broke a rib. He quit and bought a vegan hot dog stand in downtown Salt Lake. But though he'd gotten a taste for polemics, he wasn't sure how to satisfy it. He thought a lot of activism lacked a winning strategy. When a friend dropped by the hot dog stand to tell him about planning meetings for Occupy Salt Lake, late in the summer of 2011, he remembers mentally rolling his eyes. But once the Occupy encampment was established, in early October, he stopped by. He was surprised to see a homeless woman he knew from his reporter days running the welcome booth. "It didn't match my stereotype of what an activist was," he said. "I was very inspired to see homeless people acting politically with non-homeless people." He joined the camp.

Occupy Salt Lake lasted a little more than a month before the city police dismantled it. Both Fruhwirth and Carter were arrested during the eviction. Some activists returned to their day jobs, Fruhwirth said, "but some of us joined the revolution and never looked back." He found Peaceful Uprising one of the few refuges for the newly radicalized in Salt Lake. Climate change was not his top priority, but neither did these seem like typical environmentalists. "I'd heard Tim DeChristopher question capitalism," he told me. "Hearing an environmentalist talk about capitalism was not quite as awesome as seeing a homeless person running the welcome booth at Occupy, but it was one of those moments."

Peaceful Uprising members told me their goal at present is to stop "extreme energy extraction" on the Colorado Plateau. Grassroots activists across the country are converging on a similar aim: No new infrastructure for the extraction, transportation or burning of fossil fuels. "Not here, not in Fort McMurray, not in Mobile, Alabama," Lauren Wood, an early Peaceful Uprising member who just left the group, told me. "Not fracking, not oil, none of it." It's a tall order; stopping even one Utah mine will be tough unless tumbling oil prices change things for the company. Yet the activists' ultimate goal is even more ambitious: to end growth-at-all-costs capitalism and oppression in all forms — to fundamentally restructure the entire economic and social order.

PETER BOWDEN, COURTESY LOBSTERBOATBLOCKADE.ORG

Canadian scientist and environmentalist David Suzuki, far left, fired up after his grandson, Tamo Campos (behind) was arrested at a protest against energy company Kinder Morgan's pipeline expansion at Burnaby Mountain, a Vancouver, Canada, suburb. Alec Johnson, center, strapped to an earth mover in protest of the KXL pipeline. Above, Bristol County, Massachusetts, District Attorney Sam Sutter waves a *Rolling Stone* article by Bill McKibben as he speaks outside a courtroom after announcing a deal to drop charges against two environmental activists who had blocked a coal shipment.

"Of course it's too big," DeChristopher told me, when I reached him by phone and inquired about the grassroots movement's ambitions. "If we're going to create any kind of change, it's going to have to come from a mass movement. And to effectively mobilize people you need a big vision," he said. "Every successful social movement in our history has been unrealistic. Even people who were anti-slavery thought abolitionists were completely nuts. There had literally always been slavery until it was banned. Why not aim for something we actually want? Why not aim for the kind of world we want to see?"

On Saturday night back in the Book Cliffs, I crawled into my tent and opened *The Monkey Wrench Gang*. I'd brought it with me, guessing that Abbey's environmental call-to-arms had helped inspired the activists. If so, it never came up.

LATE SUNDAY MORNING, under a pocket of blue sky, some 30 people climbed out of vehicles onto Seep Ridge Road. One man wore a colorful clown mask; another played "This Land is Our Land" on a saxophone. A brown-and-white teacup of a dog scampered about, its fur ruffled by a whiplashing wind.

A couple of people unfurled a banner — "Together and Everywhere We Rise Up for Climate Justice" — and the group marched toward the test pit. The banner was a nod to the People's Climate March, now underway in New York, where hundreds of thousands jammed the streets in an event *Politico* described as "a coming-out party for a new breed of environmentalism — one that's louder and rowdier than the old-school greens."

The Utah activists hoped the New York march would accomplish something but were disappointed with its tame approach. It was planned in cooperation with the police and did not confront any specific threats. They were more jazzed about Flood Wall Street, a more aggressive, unpermitted sit-in planned for the following day. Its slogan: "Stop capitalism. End the climate crisis."

Here, though, things were pretty tame, too. When the marchers arrived at the test pit, about half of them scrambled through an opening in the fence, past "no trespassing" signs, some with bandanas or scarves pulled up like bandit masks. They stood beside the pit's brown pond and posed for pictures. The clown climbed atop a pile of excavated rock and thrust a "No Tar Sands" sign in the air. Others stayed on the legal side of the fence, either not interested in breaking the law, or seeing little value in it in this instance. The cops never appeared; I was the only reporter. There was scarcely anyone out here to witness it. Nevertheless, the protesters were here to say "no" to the mine because, as a white-haired woman from Moab named Dorothy put it: "These days, if you're not saying 'no,' you're saying 'yes.' "

I DROVE HOME AFTER THE MARCH, where on and off for the next couple months, I tried to figure out exactly what I had learned about the climate activists and about myself.

I was surprised by how little they resembled the environmentalists I usually interviewed. There was little talk of the finer points of renewable energy policy, little time spent lamenting the death of trees, or the troubles of pikas and polar bears. But immigration reform came up. The legacy of colonization for Native peoples came up. Capitalism and its sins came up — a lot.

Radicals, more than one person told me, try to attack the roots of problems. The word "radical," they said, means "going to the origin." And the members of Peaceful Uprising have come to believe that the root cause of climate change and other massive problems, like income inequality, is the profit-hungry capitalist system we're all part of, and especially the people at the top of it.

"This isn't just about CO_2 in the atmosphere and parts per million," Carter told me. "The various oppressions that have led up to this have been going on for centuries. All of these things are feeding the same system of overlapping and self-reinforcing problems." To Carter and her comrades, climate change represents the last, worst example of the unjust relationship between rich and poor, white and black, colonist and Native. "The refugee crisis we're going to be seeing will affect the most marginalized. Wars — that is real."

I got some of what they were saying

Please see **Occupy** *page 54*

HCN's Annual Issue on the Future

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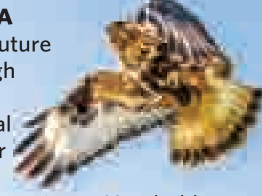

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PHILOSOPHY ED.

New push in an old field

BY ALEX CARR JOHNSON

In response to escalating environmental crises such as climate change and forest decline, many colleges and universities across the West are developing a variety of on-the-ground action-oriented degrees. Students who seek to shape future landscapes, cities and infrastructure can take advantage of an array of programs that range from land management to environmental policy, sustainable business to wildlife biology. Yet a growing number of environmentally minded students are gravitating toward one of academia's oldest fields: philosophy.

Courses in environmental philosophy and ethics push college students to ask the broadest and most basic questions about the underlying social causes of current crises. What deep-seated values in our society discourage the acknowledgment of ecological limits? What ethical frameworks might lead us toward a more sustainable future?

"Among young people, there is a real hunger for dealing with these kinds of questions," says Philip Cafaro, professor of philosophy at Colorado State University. "The baby boomers were about having everything. They were looking for win-win solutions. They found lots of successes, of course, but an ecologically sustainable society has not been one of them."

Can environmental philosophy and ethics programs spur younger generations to build a sustainable society? Students, faculty and universities seem to think so. Colorado State University is just one of dozens in the West now offering degrees and certificates in environmental philosophy at the undergraduate and graduate levels. Many more colleges and universities offer at least some environmental ethics coursework within their philosophy or environmental studies departments.

Environmental ethics courses are filling up more quickly than ever before, and not just with philosophy geeks. Students from a variety of fields, including biology and geoscience, are enrolling in increasing numbers. "Students are realizing that to only understand hydrological processes is useless without also understanding the broader social and ethical issues that have produced them," says Lisa Floyd-Hanna, professor of environmental studies at Prescott College.

The following list highlights some of the West's most robust environmental philosophy programs. Though far from comprehensive, it reveals the wide array of philosophical offerings now available to students regardless of major. Perhaps we'll all sleep a little better at night knowing a more ethically minded workforce is on its way.

What deep-seated values in our society discourage the acknowledgment of ecological limits?

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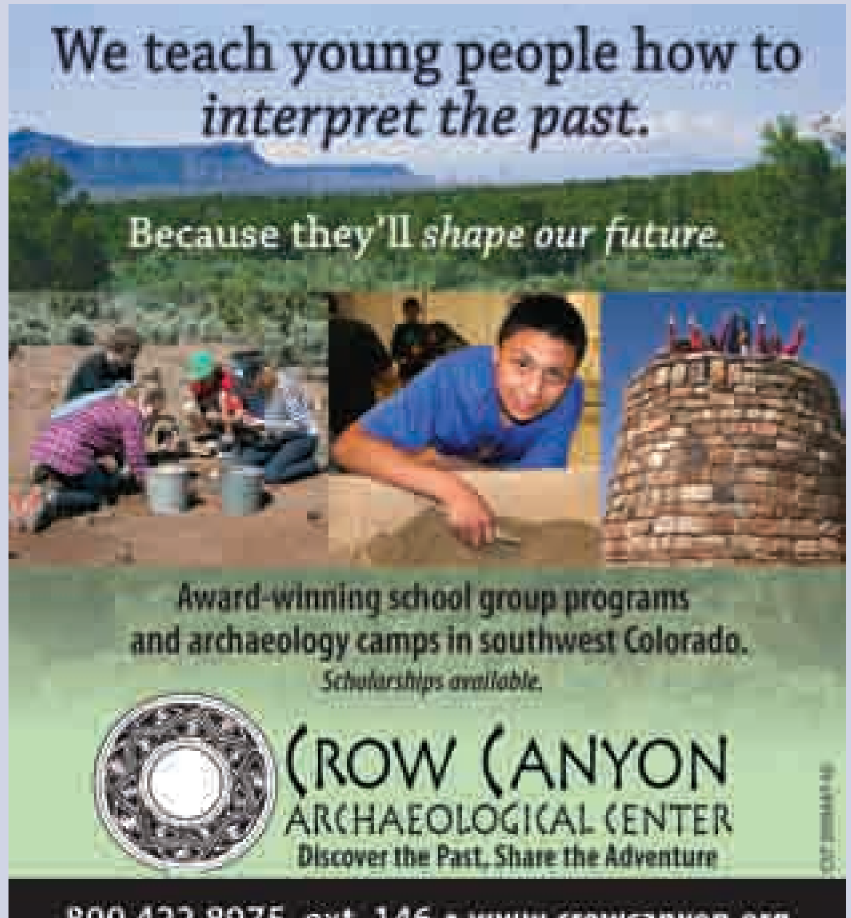

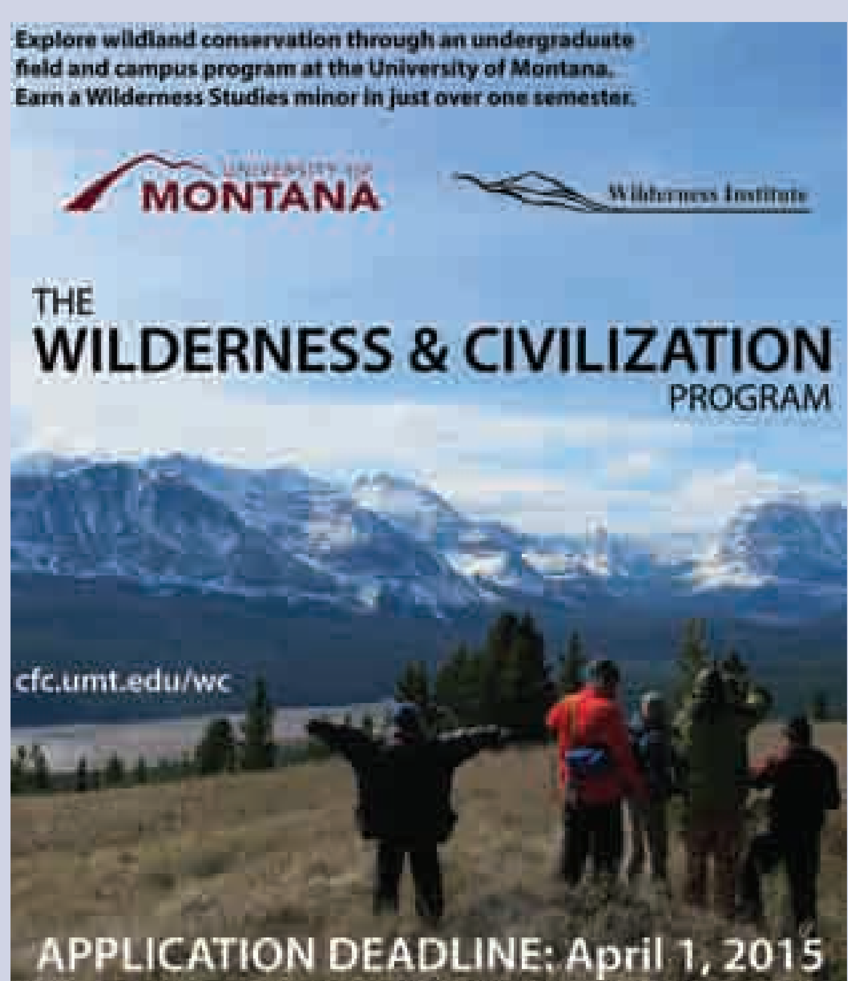

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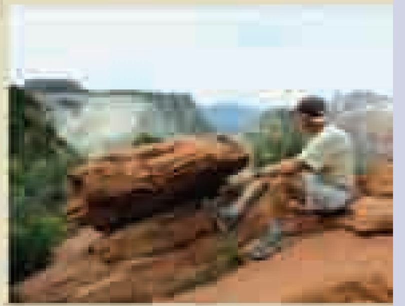

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ARIZONA

In order to prepare future scientists to conduct research and inform policy in an ethical manner, **Arizona State University's** New College of Interdisciplinary Arts and Sciences (newcollege.asu.edu/mns/degrees/naturalsci) has designed a BS in environmental sciences which requires all students to enroll in environmental ethics and policy courses. The program prioritizes the "connectedness of disciplines" while encouraging students to take advantage of top-tier research facilities. Another perk? With the help of the Western Undergraduate Exchange (www.wiche.edu/wue), students from most Western states can attend for reduced tuition.

With an academic culture deeply rooted in both interdisciplinary and environmental studies, **Prescott College** (prescott.edu) offers fertile ground for would-be environmental philosophers. Courses include "Religious Ethics and Environmental Activism" and "The Idea of Nature." Students can enroll in the more traditional full-residency environmental studies program at the undergraduate level or can instead earn their self-directed undergraduate or graduate degrees through the school's unique limited-residency program. Why contemplate the future of nature and humanity in a fluorescent-lit classroom when you could do it while climbing a mountain, paddling a river or actively helping communities become more sustainable?

CALIFORNIA

Though **Santa Clara University** does not offer a degree in environmental philosophy, it does provide a wealth of resources for its undergraduate students through the Markkula Center for Applied Ethics (www.scu.edu/ethics/). The Center offers an environmental ethics fellowship to fund student projects that address the ethical implications of particular environmental challenges. Past projects have questioned the philosophical underpinnings of sustainability, solar power accessibility and agriculture, among other issues. The center also publishes articles, blogs and podcasts that address urgent challenges in applied ethics, including a 12-part short course on environmental ethics available for free online.

Students enrolled in The Bren School of Environmental Science & Management at the **University of California Santa Barbara** can earn an interdisciplinary doctorate or master's in environmental science and management (MESM). Students interested in ethics benefit from the program's affiliation with the campus-based Walter H. Capps Center for the Study of Ethics, Religion, and Public Life, which organizes internships and lectures. Other resources include the UC Center for the Environmental Implications of Nanotechnology and the Center for Energy and Environmental Economics.

The 2011 Prescott College winter wilderness orientation in the Grand Canyon. COURTESY PRESCOTT COLLEGE ARCHIVE

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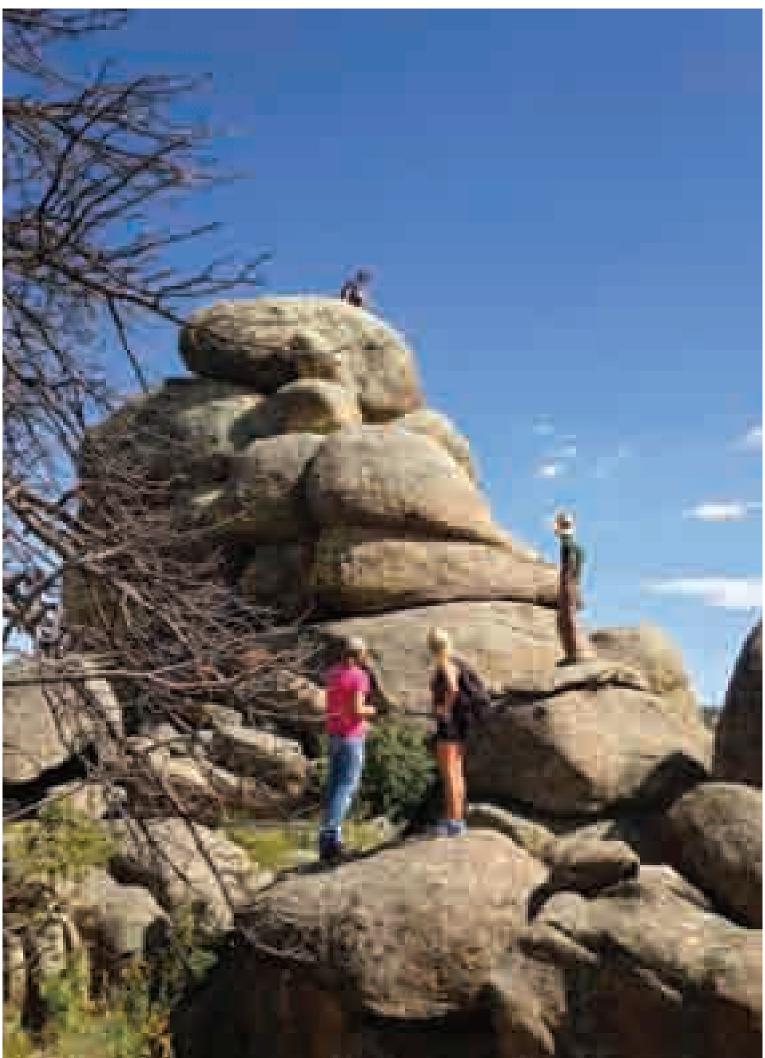
COLORADO

Colorado State University's Department of Philosophy (philosophy.colostate.edu) offers one of the West's oldest and most robust environmental philosophy programs. Undergraduate and graduate students can select from courses including bioethics and society, ethics of sustainability, and philosophy of natural sciences. Despite the abundance of offerings, student interest outpaces available seating: "I am dealing with emails from a dozen students right now who are trying to get into a course that is already full," says environmental philosophy professor Philip Cafaro. With its campus located in Fort Collins within sight of Rocky Mountain National Park, students are encouraged to engage with the land as well as the academic community. After reveling in the high country, they can "contextualize their euphoria" with full-time faculty member Katie McShane, whose past research includes finding the most effective ways to articulate a sense of wonder within larger environmental policy discussions.

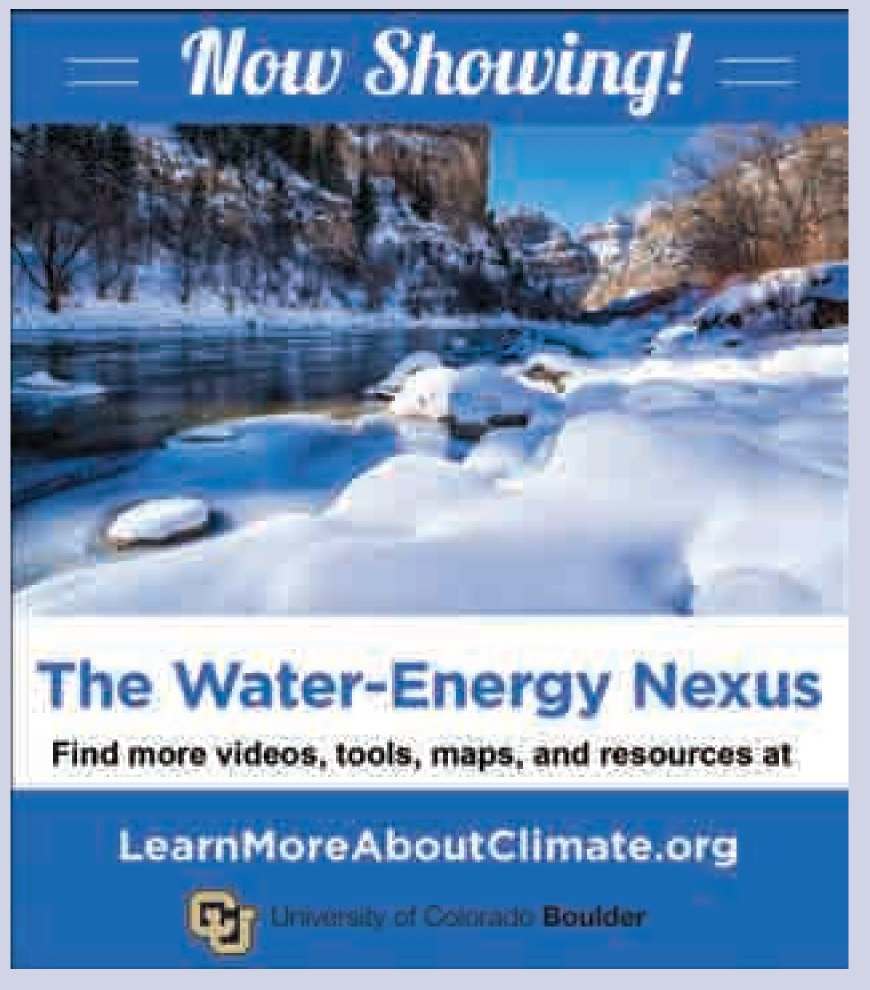
Also at the base of the Rocky Mountains, the **University of Colorado Boulder** offers multiple opportunities for students interested in environmental philosophy. The Philosophy Department, a leader in the field of applied ethics, offers a graduate certificate in environment, policy and society. Meanwhile, the Environmental Studies Department (colorado.edu/envs) provides students with master's or doctorate programs with an ethics-heavy "theory and values" concentration. No matter which program they choose, students stand to benefit from the close ties between the departments. The university also hosts the Center for Values and Social Policy (colorado.edu/philosophy/center), which supports research, organizes conferences and sponsors lectures on the relevant applications of ethics.



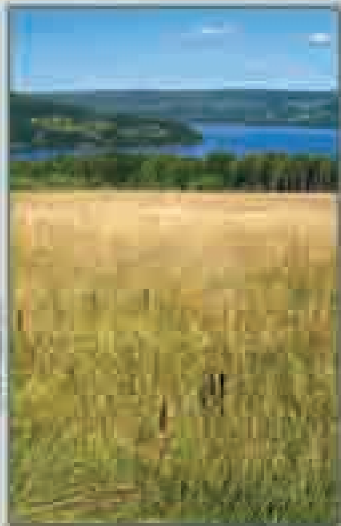
IDAHO

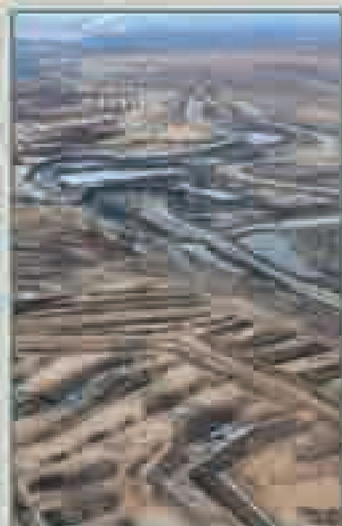
Scholars at the **University of Idaho** can earn a master's in environmental philosophy through the Philosophy Department (uidaho.edu/class/philosophy). Since 2013, the program has been home to a student-published ethics journal titled *The Hemlock Papers*. Students can also present their research at the annual Inland Northwest Philosophy Conference, organized this year by Boise State University and Washington State University.

CSU philosophy professor Philip Cafaro takes graduate students on a hike in the Red Feather Lakes area of the Roosevelt National Forest.
COURTESY PHILIP CAFARO



Call to reason





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This article, published in *Share International* magazine, was written by a Master of Wisdom. The Masters – headed by Maitreya, the World Teacher – are highly advanced teachers and advisors of humanity who are planning to work openly in the world very soon.

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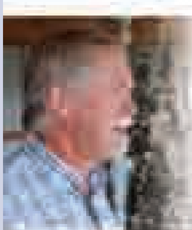

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MONTANA

It doesn't take long at the **University of Montana** to abandon the stereotype of philosophy students hiding out in the library. Missoula prides itself in being the closest urban center to any wilderness area in the United States — only a short drive to the largest contiguous wilderness area in the Lower 48. Don't want to take that much time away from your studies? Mountain bike trails leave directly from campus. The Philosophy Department (cas.umt.edu/phil) offers a master's in environmental philosophy along with coursework for undergraduates. The program requires students to carry out a three-credit internship with a local nonprofit. (Fortunately, Missoula boasts one of the highest per capita rates of nonprofits in the country.) The Environmental Studies Department (cas.umt.edu/evst) also offers a number of ethically oriented courses, including "Ethical Issues of Ecological Restoration" and "Greening of Religion."

OREGON

The **University of Oregon** prides itself on one of the strongest interdisciplinary environmental studies programs in the nation, with over 100 faculty members across a wide number of departments, so it is not surprising that it also possesses one of the strongest environmental philosophy programs as well. Doctoral candidates in the environmental sciences, studies and policy program (envs.uoregon.edu/graduate/doctoral) can choose philosophy as their focal department. The two departments also collaborate to produce the journal *Environmental Philosophy*, one of the premier peer-reviewed journals in the field. Coursework features historically marginalized ethical perspectives including deep ecology, ecofeminism and indigenous philosophy. The program also manages the environmental leadership program, which places its students in local nonprofits, businesses and governmental agencies.

Oregon State University's Department of Philosophy offers a master's in applied ethics with an emphasis in environmental philosophy. The program requires students to actively analyze and engage with ethical issues in the field, providing opportunities to do so through the Phronesis Lab for ethics research. For students with a more literary bent, the university also hosts the Spring Creek Project for Nature and the Written Word.

One of the only universities in the nation to offer a bachelor's in environmental ethics and policy, the **University of Portland** (college.up.edu/envscience) uses a Catholic theological framework that emphasizes social justice to address the underlying ethics of its academic offerings. Located in the famously progressive city of Portland, the university offers access to a wide variety of environmental nonprofit organizations. Steven Kolmes, chair of the Environmental Studies Department, says that students flock to environmental ethics courses, including next semester's "Ethics in Sustainable Food."

Students do research on grazed land as part of a class on "Ethical Issues in Restoration Monitoring" at the University of Montana.
COURTESY DANIEL SPENCER

University of Oregon students gather stories to promote stewardship of the McKenzie River, Eugene's only water source.
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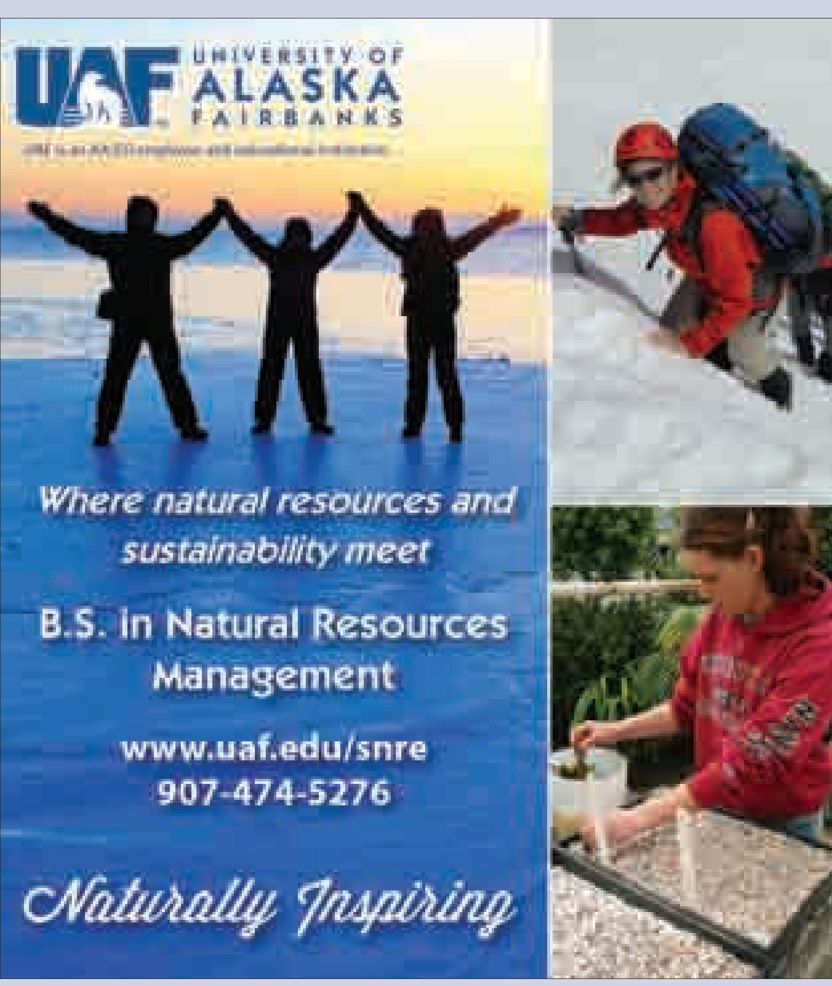

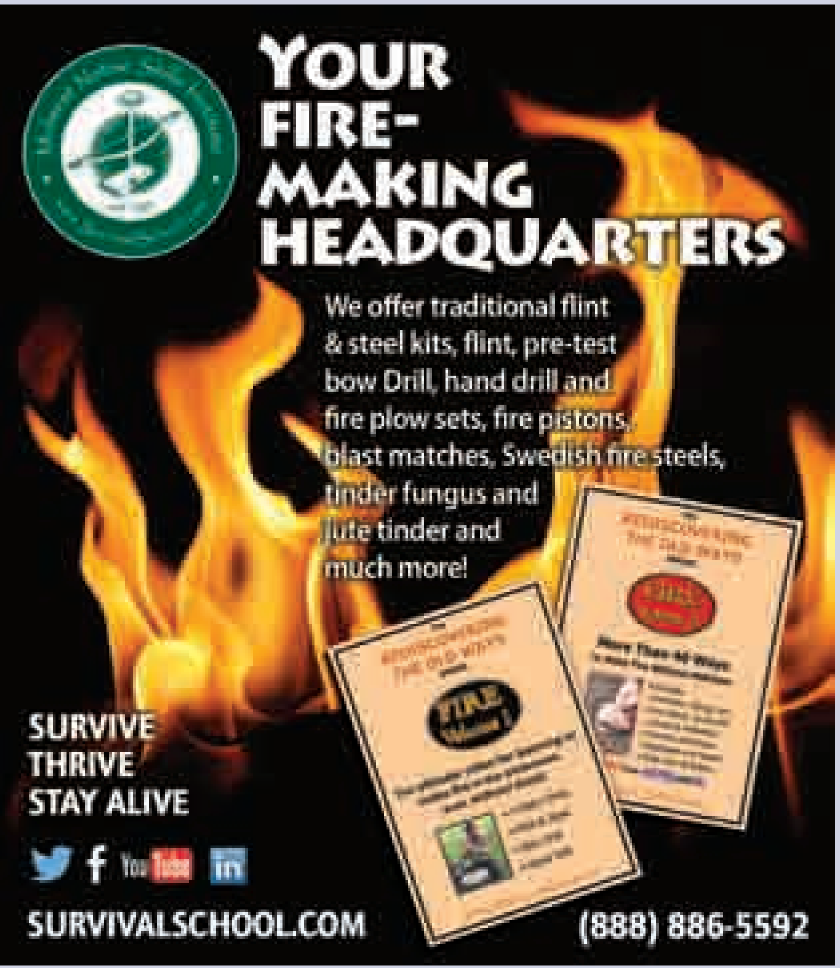

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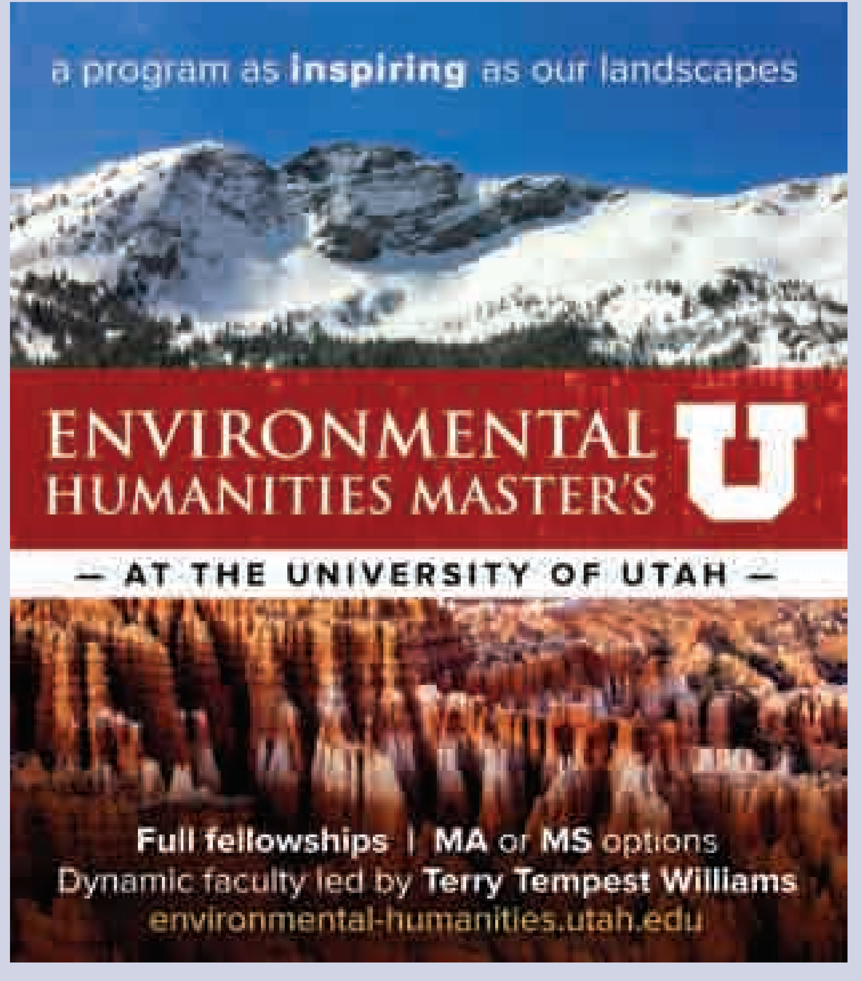

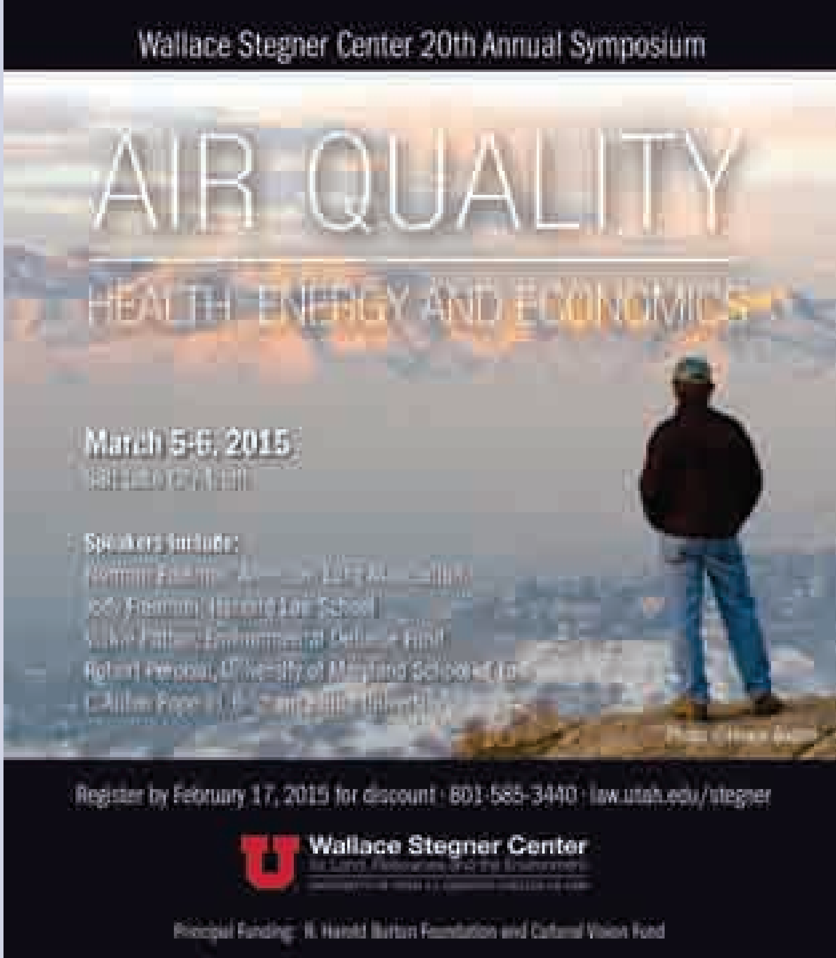

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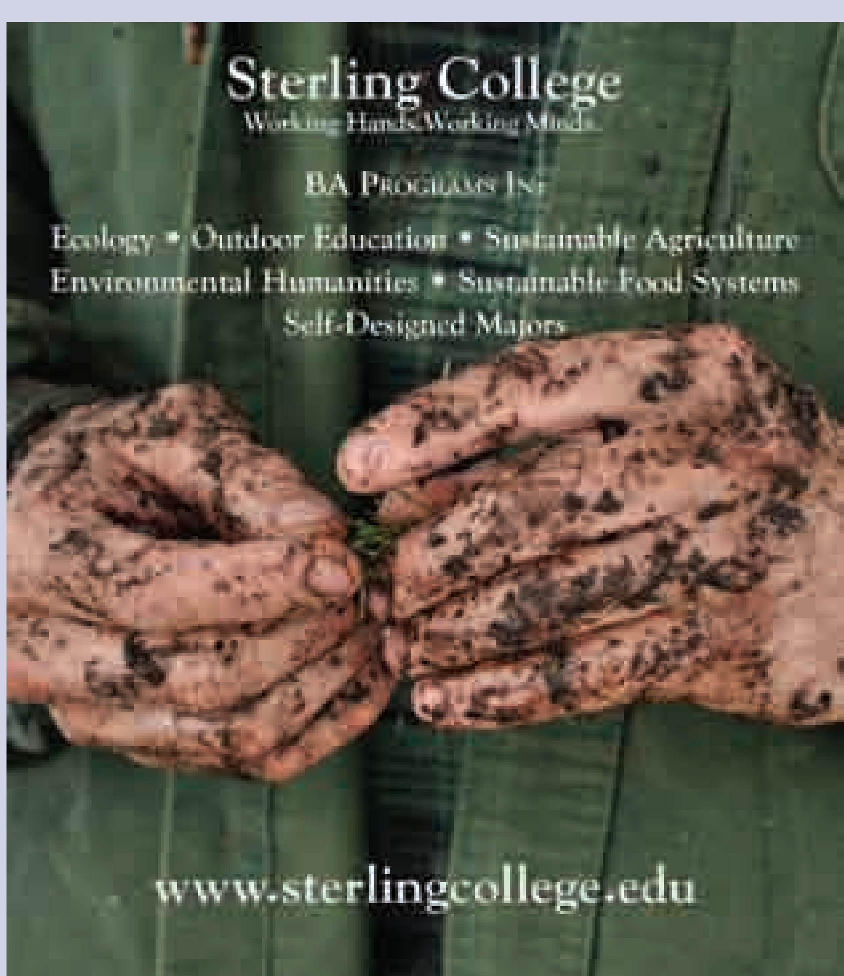

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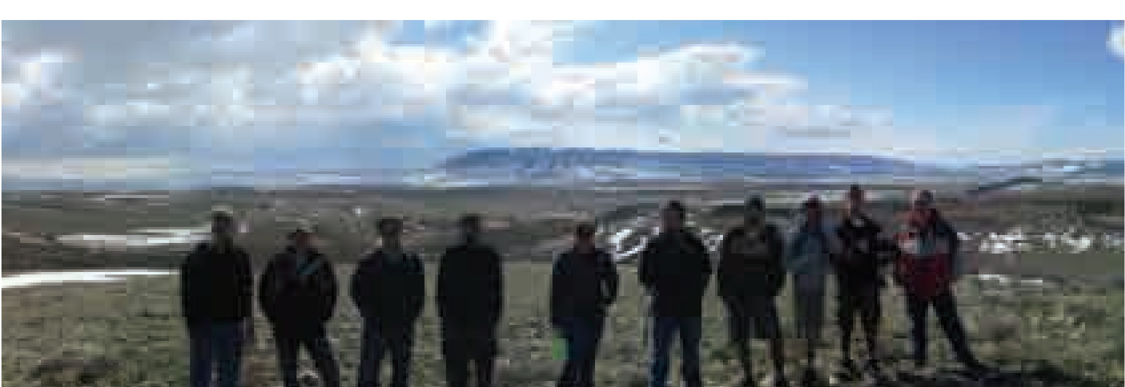
UTAH

Students seeking a master's of arts or science or a doctorate in philosophy and applied ethics can find plenty of opportunities at the **University of Utah** (philosophy.utah.edu/graduate). The program works closely with the College of Business, College of Law and School of Medicine to allow its students to pursue multiple degrees concurrently. It also offers a joint program with the Institute of Human Genetics, located on campus. With 19 full-time faculty (not all of them specializing in environmental ethics), the department boasts small class sizes and close interaction with instructors.

WYOMING

In order to serve undergraduates who are not majoring in philosophy but still want a strong foundation in environmental ethics, the **University of Wyoming** has created an environmental values minor. Faculty in the Philosophy Department (uwyo.edu/philosophy) see it as a way to provide "a vital link" between the humanities and the natural and social sciences. Coursework explores the "aesthetics, culture, ethics, and policy" associated with current environmentalism. The school's location in Laramie, population 30,000, allows students plenty of extracurricular opportunity to contemplate the aesthetics of the nearby Laramie Mountains.

Philosophy students from the University of Wyoming gather at Table in the Wilderness camp near Centennial, Wyoming, to study stoicism for the annual Stoic Camp. While the camp is not a lesson in environmental ethics, students get the opportunity to explore the outdoors while considering the relationship between themselves and nature. COURTESY DEPARTMENT OF PHILOSOPHY, UNIVERSITY OF WYOMING



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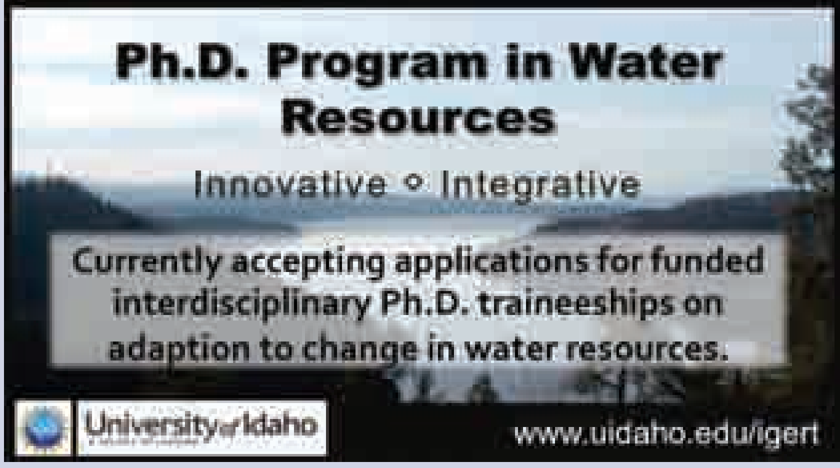

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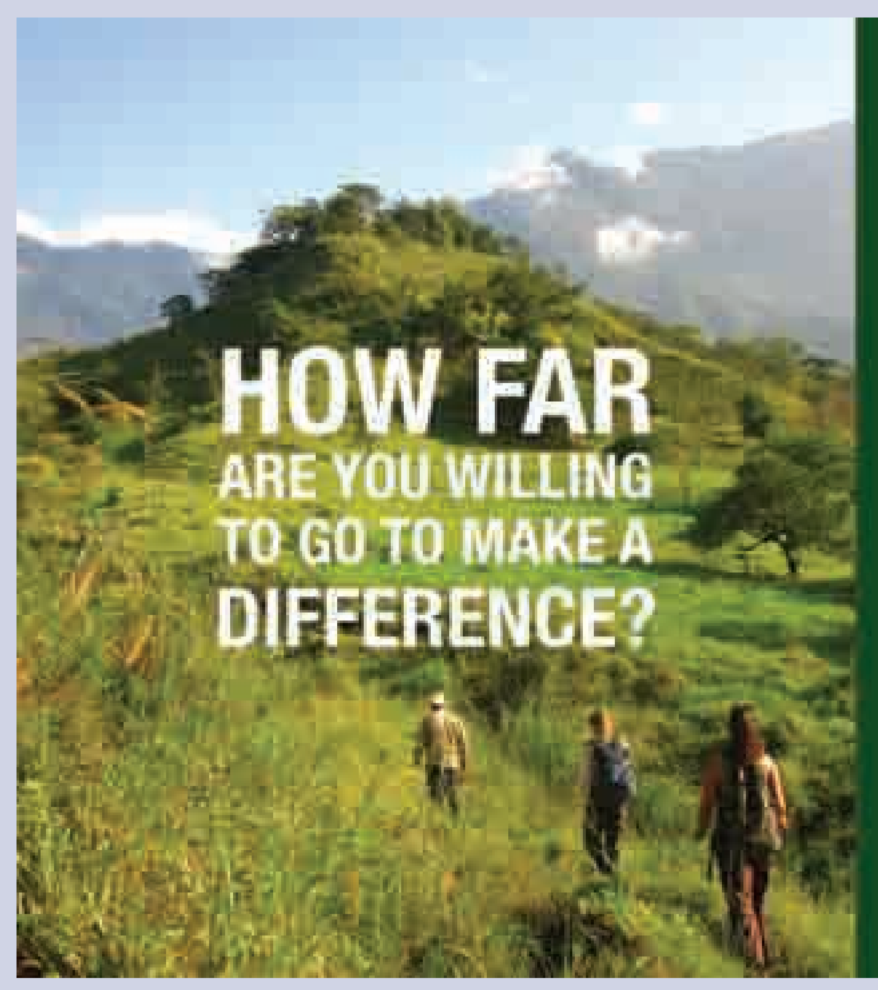

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BEYOND THE WEST

At the **University of Victoria**'s School of Environmental Studies (uvic.ca/socialsciences/environmental), located in beautiful Victoria, British Columbia, students seeking their bachelor's, master's or doctorate can choose from three interdisciplinary research areas: ethnoecology, ecological restoration or political ecology. Undergraduates can also minor in the human dimensions of climate change or conduct research through the intergovernmental Pacific Institute for Climate Solutions, which is hosted by the university.

The **University of Alaska Anchorage**'s Philosophy Department (uaa.alaska.edu/philosophy) has created a certificate in applied ethics for undergraduates interested in entering any number of professional career tracks while seeking working knowledge in ethics. Though the certificate program is not devoted solely to environmental concerns, in the course of their studies students can enroll in upper-level environmental ethics courses for engineering, business and law. With the long winter nights and sub-zero temperatures — and a campus shared by dozens of moose — students might be glad to spend hours contemplating the big questions inside the comforts of the gorgeous UAA/APU Consortium Library.

Even though the **University of North Texas** is located a few degrees east of the 100th meridian, its environmental philosophy offerings deserve a place in this list. The Department of Philosophy and Religion is home to the peer-reviewed journal *Environmental Ethics* as well as to the Center for Environmental Philosophy (cep.unt.edu), a nonprofit that provides a number of online resources for anyone interested in the field. Graduate students can earn a master's or doctorate in philosophy with a concentration in environmental ethics.

The **International Society for Environmental Ethics** (enviroethics.org) also provides online resources for students, faculty and the general public. Since 1990, the organization has facilitated discussions between environmental philosophers around the world. It also manages an online bibliography with over 16,000 entries.

Ready to tackle the big questions yourself? **The Center for Humans and Nature** (humansandnature.org) has created an online forum for scholars and armchair philosophers alike. Three times a year, the center poses a new "Question for a Resilient Future," in order to spark constructive public dialogue. Recent questions include: How far should we go to bring back lost species? Does hunting make us human? And what does the Earth ask from us?

There are many other environmental philosophy programs out there — too many to list. If you know of one that merits attention, tweet it to us **@highcountrynews**.

John Nolt, from the University of Tennessee, and Umberto Sconfienza, from Tilburg University, below, listen to a talk at the annual International Society for Environmental Ethics meeting. On a hike during the meeting, left, philosophers experience the wind and the earth like low-laying alpine plants.
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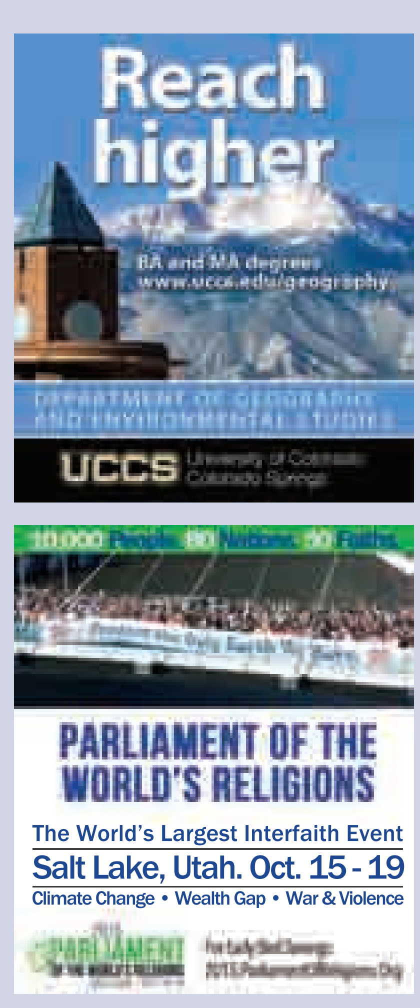

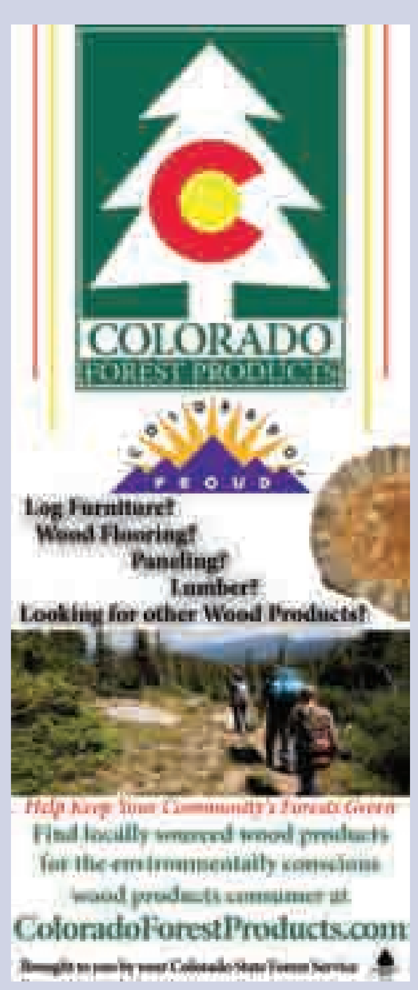

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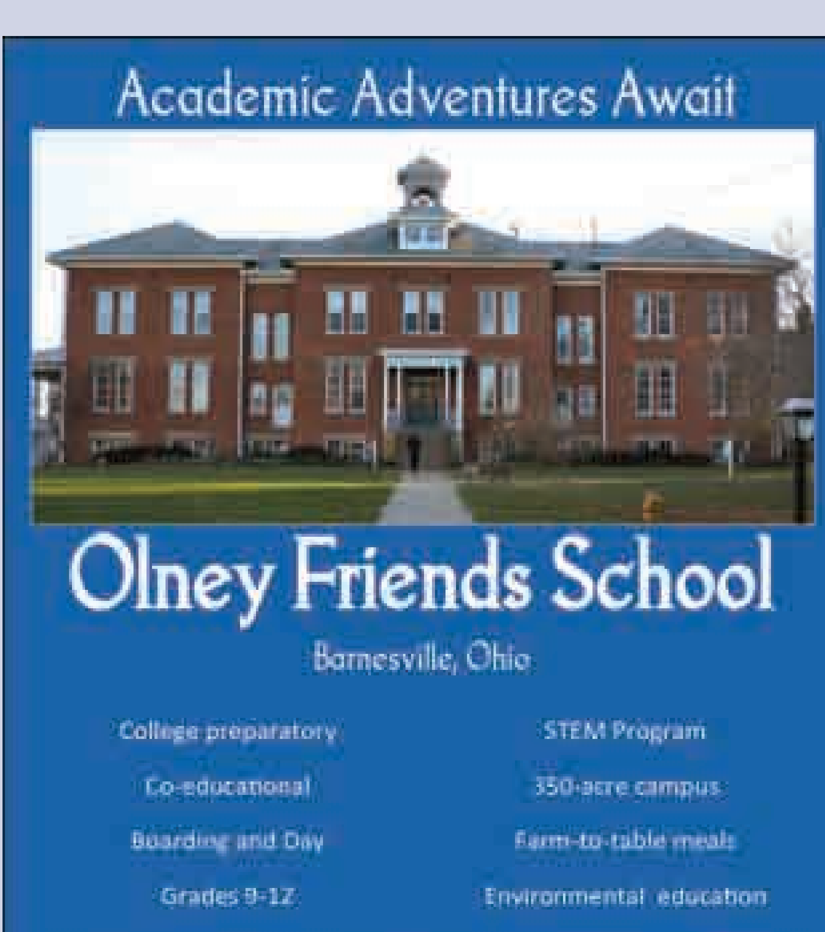

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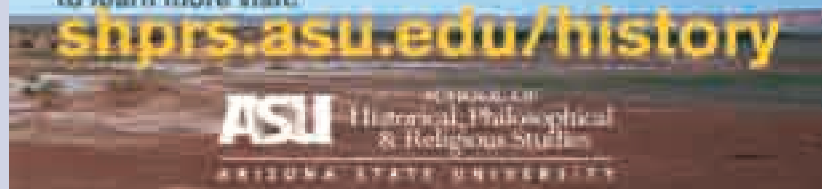

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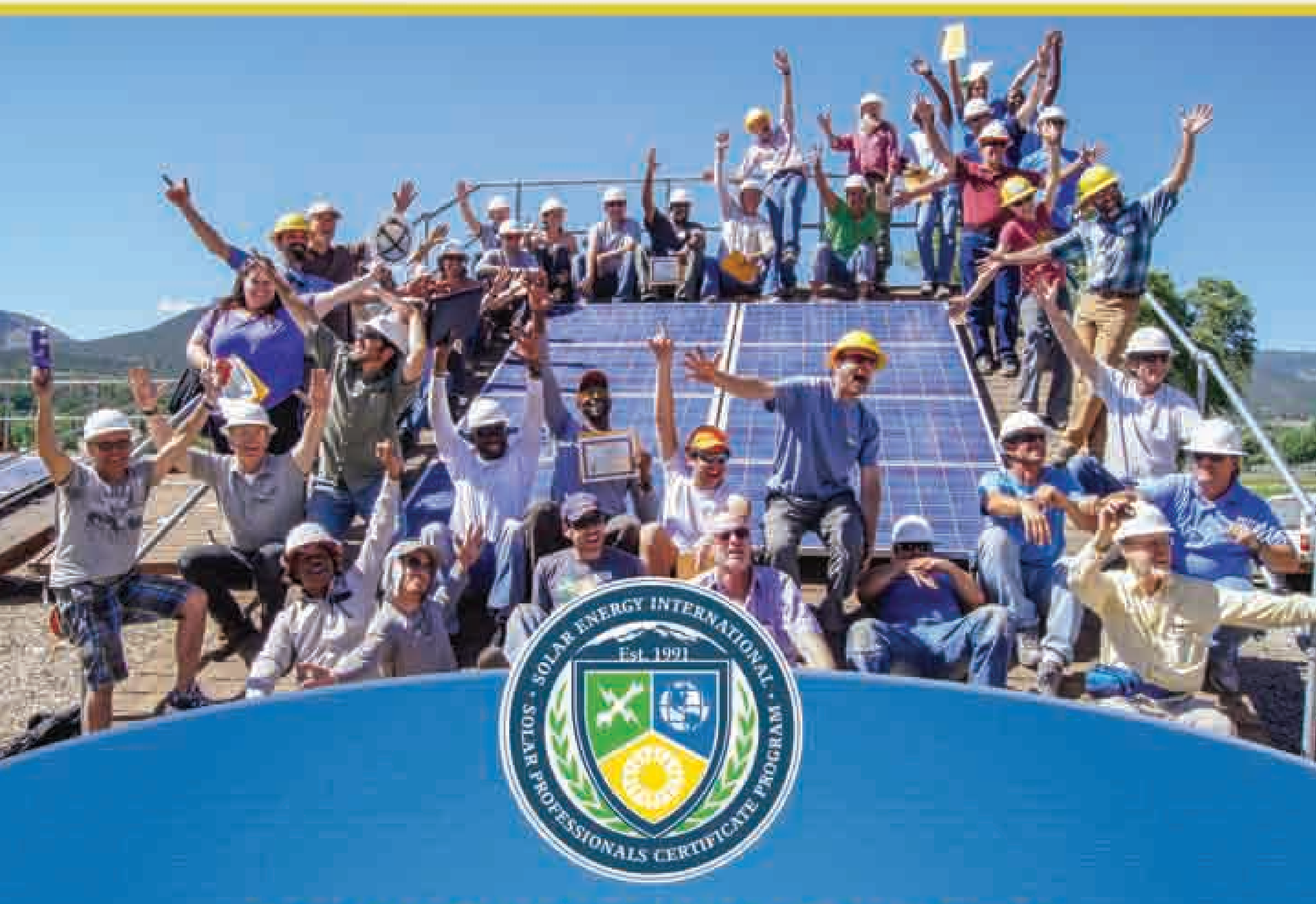

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Through the mountains and over the desert in the rocky and rugged American West, 200 years from now, a turkey vulture flies. Pink flaps of bald skin encircle her beady eyes; her crooked black feathers are slick with carrion grease. This weird bird could be considered the West's last surviving heroine. That is because she is a perfect mirror for her native landscape, which has become more harsh and depleted than ever.

Once, the powerful cities of Denver, Salt Lake and Phoenix held sway, surrounded by seemingly eternal miles of asphalt blah. Now, in the year 2215, these metropolises are empty, save for the tumbleweeds piled high against old chain-link fences and the walls of abandoned buildings.

For wild things like the turkey vulture, this withdrawal of a crumbling civilization should have felt like a victory. And it might have, had many creatures other than vultures survived long enough to see it happen. But the desert tortoise, the pronghorn and the big cats vanished long before the humans fled this region. Even the coyote, that resilient, versatile trickster of the animal kingdom, finally surrendered. And there can be no restoration of this part of the world now, for there is no water. The

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BY NATHANIEL KENNON PERKINS, 2014 BELL PRIZE WINNER

landscape reflects the decaying décor of the dusty rooms in the now-empty cities. It is a sun-blasted hell.

Not that there is no water at all: There is a little, but it is hoarded; the land is not allowed to use any of it. The few remaining springs and parched aquifers and the pathetic trickle of piss that was once the mighty Colorado River have long since been privatized. In 2215, there is only water enough for the water company employees themselves, with just enough left over to sell at an ultra-high premium to the fracking technicians who pull hazard pay just for venturing into the desert during hot daylight hours. The crews who film them for reality TV shows must import their own water, as must the heavily armed private security firms that watch over and guard the billion-dollar water and energy operations.

You could describe this scene as "post-apocalyptic," but the term has become embarrassingly outdated. By 2215, historians agree that the so-called apocalypse began hundreds of years earlier, sometime in the 20th century. This was back when corporations and politicians were still pouring money into convincing some of the more gullible citizens that there was no such thing as climate change and that the much-sought-after and heavily exploited natural resources were still abundant. By the time they realized that it was simpler, not to mention cheaper, to simply take what they wanted by force, even from their fellow citizens, the collapse had been underway for generations.

No, the post-apocalyptic era has come and gone: 2215 is in the middle of the Age of Endurance. And there are those who endure. Not in the Southwest, where such a feat would be impossible without a private army and a bankroll the size of Shiprock, but farther north, where some rain still falls. Every day there are more who dare to believe that the experiences of life should be richer than mere survival. Their goal remains distant, but they are working toward it with steadfast determination: by showing gratitude for the land that gives them life, by growing sustainable organic crops, by taking care not to overharvest the mushrooms and berries they forage from the forest, by abandoning cattle with their stinky beef and eating only the meat that comes from the deer and elk that they respectfully hunt or from the few salmon that they fish. They are healing by helping the Earth to heal. In 2215, things are finally starting to change.

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ESSAY BY SARAH GILMAN

Kaye Fissinger collects Don Quixote. I met the diminutive 70-year-old at her home in a quiet subdivision of Longmont, Colorado. Amid memorabilia from her work in musical theater, black-and-white portraits and an eye-popping snapshot of her body-builder daughter, the man of La Mancha stared from prints and paintings, posed in wooden statuettes and porcelain figurines.

"Why Quixote?" I asked.

She regarded me over gold-rimmed glasses, a smile quirking her mouth. "Because he tilts at windmills," she said.

In a way, so does Fissinger, but hers are the oil-drilling rigs that have popped up lately in her area. She looked computer-tired, clad in a white turtleneck, her hair pulled into a ponytail. She led me upstairs to a cluttered home office, cleared a stack of documents from a chair and urged me to sit. When she came here from L.A. in 2006, she explained, she was worried about the separation of church and state.

She didn't yet realize that the plains further to the northeast were pin-cushioned with tens of thousands of wells, many of them hydraulically fractured, or fracked — a process that involves firing water, sand and chemicals thousands of feet underground at incomprehensible pressures — or that the boom had intensified in recent years.

Then one day in 2011, an automated phone survey asked her an odd question: How would she feel if drilling took place on Longmont open space? "Radar, radar!" she exclaimed. A company, it turned out, had proposed drilling around a local reservoir. The more she learned, the more she worried. She thought of her great-grandkids. A lung cancer survivor, she thought of her respiratory health. She thought about the flat lot near her house that might be a perfect place for a rig.

And in 2012, she helped found the nonprofit Our Health, Our Future, Our Longmont, which spearheaded a ballot initiative that made the city the first in Colorado to ban fracking. The next fall, despite industry's expensive counter-campaign, several other Front Range communities followed suit. Places across the West and the country have also joined in, from rural Mora County, New Mexico, in 2013, to, most recently and significantly, the state of New York, which overlays a booming shale gas formation.

Though many bans face long odds in court — Longmont's and others have already been shot down and are headed for appeals — activists and local officials keep fighting. "We're in it for the long haul," Fissinger told me emphatically. "Fracking is a toxic, extreme energy extraction method. I don't think it *can* be made safe."

The prospect of a drill rig towering over one's home would terrify just about anyone, me included. But I still felt conflicted: A near-term transition from oil and gas is profoundly unlikely. Natural gas is slowly supplanting coal as a primary electricity-generating fuel. Petroleum runs our planes, trains and automobiles. Both make it into a dizzying array of plastics and personal care products.

The corporate machine of hydrocarbon development contains a ghost. And the ghost in that machine is us. Until that changes, every fracking ban — Longmont's, Mora County's, New York's — no matter how heroic and justified, simply pushes drilling somewhere else. I wanted to know: Where are we saying *yes* to such development, and how can we say it in a way that lessens impacts on landscapes and people?

I had one hunch. To see if it bore out, I rented a red Chevy Cruze, filled the tank, and got behind the wheel. "Remaining Oil Life: 97%" blinked on the dash. *How appropriate*, I thought, and drove west, toward Energy Country.

I WASN'T THE ONLY LONE DRIVER headed into the mountains on I-70; hundreds of us sped along in Subarus, Tacomas and other sporty rigs — Colorado cockroaches, we call them — likely bound for the outdoor meccas around the Continental Divide. But once the resort bedroom community of Glenwood Springs was in my rearview, traffic thinned. The tiny Cruze wobbled in the wake of scattered semis ferrying goods. Compressor stations and natural gas well pads lined the roadsides. Not far west of the Colorado-Utah line, I pulled off at the exit for Danish Flat. There, amid eerie silence, was a vast complex of plastic-lined ponds: The final resting place for the waste from the drilling operations I had passed in western Colorado.

In their 2003 report, *What Every Westerner Should Know About Energy,* historian Patty Limerick and her colleagues observe that there seems to be nowhere left to put energy infrastructure without a fight. "We have run out," they wrote, "of unloved and unlovely places." Clearly they weren't talking about this spot, I thought, peering across the chain-link fence at the stagnant water and plugging my nose.

To the northwest, exploding from the flat expanse of weed-scattered earth, the Book Cliffs looked like a better example of a lovely, loved place. Beyond their rims stretch great swaths of unbroken piñon-

ZONE

juniper forest that eventually give way to sun-etched canyons pouring into the Green River where it wends through Desolation and Gray canyons. About 6,000 boaters annually ply an 84-mile stretch of whitewater through their remote depths. For years, the hardline Southern Utah Wilderness Alliance, based in Salt Lake City, has fought development that threatened these and millions of other acres of wilderness-quality land.

And yet, in 2010, SUWA essentially said yes to hundreds of gas wells that a company called Bill Barrett Corp. had proposed on the West Tavaputs Plateau not far west of Desolation Canyon. By doing so, SUWA wasn't caving. It was allowing inevitable development to go forward in a way that was least harmful to landscapes it wanted to protect. It was also making a sort of tradeoff.

On a sunny October day, I hitched a ride to the top of the plateau with Bureau of Land Management Price Field Office Manager Ahmed Mohsen to see what SUWA got in return. "Isn't this pretty?" Mohsen said as we gazed from one of the field's well pads on a finger of mesa top into a red-rock fissure called Jack Canyon. A wilderness study area, it feeds into the much larger Desolation Canyon wil-

Bill Barrett Corp. agreed not to drill wilderness-quality lands in and around Utah's Desolation Canyon, top, in exchange for the Southern Utah Wilderness Alliance's agreement not to sue over hundreds of gas wells the company planned to drill nearby and farther west, including these in the Nine Mile Canyon area, above. ECOFLIGHT

derness study area that encloses a stretch of the river's west flank. The promontory we stood on was part of Horse Bench, an unroaded sagebrush mesa sweeping to the northeast, backed by a pastel layer cake of buttes. On a primitive road at the field's edge, I found black bear tracks threaded along the tire marks of an oilfield services pickup.

Bill Barrett had legal right to drill in all three places, and had proposed nearly 240 wellpads there. But it relinquished plans for all but a half-dozen of those, sparing some 65,000 acres of wilderness quality land, in exchange for SUWA's agreement not to sue to delay the entire project, most of which sprawls farther from the canyon to the west. The cluster of remaining wellpads that Mohsen showed me that day were near historic wellpads that the company has since reoccupied, and their infrastructure was set out of sight below ground, with seasonal restrictions on drilling to avoid disturbing boaters. Jarring as the naked scrapes of earth were, they clearly beat the alternative.

> "If you want a sacrifice zone, move it to Boulder. Let's have big money fight big money and see who comes out the winner."
>
> –Herm Hoops, Jensen, Utah, resident

The deal — the largest of a handful of similar compromises SUWA has since made — seemed like a win-win from here. It also openly made the judgment implied in every fracking ban: Some places are more valuable than others. "Part of the thinking was to push development back to stay next to existing development, and that way limit new roads, new intrusions, new infrastructure," SUWA attorney David Garbett had told me earlier. Because the group's focus is on wilderness protection, from its perspective, "once oil and gas is a use in an area, it's the dominant use. It's already a sacrifice zone."

That's not an unusual sentiment among conservationists working on oil and gas issues, particularly in politically conservative states: With limited resources, many opt for triage, focusing on protecting superlatively beautiful places or intact islands of important wildlife habitat — just as the Fissingers of the world work to protect their communities — while actively or tacitly accepting development in other places. That same compass of reasoning suggested I might find what I had come for in the gray area between the two, in places already drilled enough that more could be tolerated. And it pointed due north from West Tavaputs, to the massive oil and gas fields at the heart of the Uinta Basin.

As I pulled down the main drag toward my hotel in Vernal, Utah, a sign for a juice bar and camo seat-cover shop popped into view: "I ♥ DRILLING."

Perhaps, I thought, "tolerated" is the wrong word.

ON A CHILLY NIGHT the weekend before Halloween, I visited the Pumpkin Festival in Jensen, southeast of Vernal. Hundreds of young families — many pregnant or toting infants or both — milled around a circuit of jack-o-lantern dioramas and a giant pallet fire while an old-time band strummed sweet-sounding harmonies. I felt on edge as I lined up for a cheeseburger: Could they tell I hailed from Boulder, Colorado, an epicenter of anti-fracking sentiment? I had heard stories of public meetings here where the mere suggestion of limiting drilling incited virtual riots. But a teenage girl in a Nirvana T-shirt, with ratted hair and a face painted like a sugar skull, offered me a shy smile along with my food.

I sat down at a picnic table next to a woman named Ellen Mecham, who pointed out her father picking a guitar at the far end of the bandstand. She wore dark eye makeup and her hair in stiff black spikes and bounced a fussy granddaughter in her lap. She grew up in the nearby town of Gusher, she told me: "Lots of time outside, not much TV." All three of her brothers work in the oil fields; her mother, sitting across from her, also counted a son-in-law. Nearly everyone I spoke to said the same: Multiple members, multiple generations. Hydrocarbons run deep here: in the ground and in the blood of the people.

Below our feet stretched the same geologic treasure trove that contains West Tavaputs' gas. The Uinta Basin has tar sands, oil shale, even obsidian-esque gilsonite, used in inks and drilling fluids. Natural gas and oil have been produced here for decades. The bulk of that development — more than 10,000 active wells — is concentrated several miles southwest of Jensen and Vernal in the central part of the basin, in an area informally called The Fairway. What's another 1,000, even 10,000, wells in a place like that?

That Saturday, Mike Stiewig, who oversees much of the development as BLM's Vernal Field Office manager, drove me through The Fairway's west side. I could see what SUWA's Garbett meant: A web of connecting roads and dozens of densely spaced pumpjacks, tanks and wellpads stretched to the horizon across dun-colored grass, amid plumes of dust kicked up by service trucks. Each pumpjack's engine blatted with backfires, accumulating into a low frequency thrum like a swarm of approaching bees. Whatever might have been lost here looked like it was already long gone.

Stiewig showed me the Monument Butte field, where one company hopes to drill over 5,000 new wells, more than half likely from the wellpads of thousands it already operates. It's basically infill, like when new homes and businesses are built within a dense urban core instead of leapfrogging across old farmland as far-flung suburbs. "The appearance wouldn't really change much," Stiewig explained, except for one thing: "It would pretty much just be lonely pumpjacks. All those tanks would go away." Instead of being stored on individual well pads, oil and other fluids would be pumped through bundles of black piping to giant centralized plants where off-gassing chemicals are much easier to contain. These thousands of individual, widely scattered tanks are, it turns out, a major source of air pollution, as are the trucks required to service them.

If all the companies developing here adopted similarly stringent controls, as they increasingly must under Utah's and the U.S. Environmental Protection Agency's tightening air quality rules, then perhaps the basin really can sustain the more than 25,000 new wells projected in the coming decades. I tried to picture their sprawl: the perfect place to drill, colonized to the max. But the scale was so mind-bogglingly vast that I couldn't help but doubt the premise of my trip.

The fact that controls like those in Monument Butte even exist in such a rural part of Utah is evidence that development is already hitting some very real limits. When wintertime inversions seal oilpatch pollutants into the valley like a giant Tupperware lid, ozone levels here spike well beyond federal limits designed to protect human health. The gas can harm healthy lungs and exacerbate existing respiratory problems. Some of the primary chemicals that contribute to its formation, called volatile organic compounds — including benzene, a potent carcinogen — also collect in the valley's communities at high-enough concentrations to warrant further scrutiny. But thanks in part to a lack of year-round monitoring and comprehensive studies, the health risks they pose remain mysterious. It leaves some residents wondering, especially given reports of birth defects,

increased infant mortality and other weird health problems near drilling sites here and elsewhere.

The day before I left the Uinta Basin, I went back to Jensen to visit a curmudgeonly river rat named Herm Hoops. Oar blades engraved with the names of the rapids that broke them from their shafts decorated his garage; rare books on historic river expeditions shared shelf space with volumes by Mary Oliver and Ellen Meloy in his living room. Stocky and boisterous with a full beard, Hoops regaled me with tales of many trips down Desolation, including one that involved hiking dozens of miles overland back to civilization after getting stuck in an ice jam early in the year.

"There are nights when we can't sleep with the windows open," Hoops told me. Hydrogen sulfide gas pools around the house, pouring in from an old oil field and complex of waste evaporation ponds down the road. He gave me directions to see more; there are about 160 such ponds in the basin, each adding its own chemical vapors to the hazy air. A bitter cold west wind kicked up while we spoke; when I stepped out the door, the smell of rotten eggs slammed me in the face. I headed south, then southwest, descending through scrub-topped benches and knobs of painted earth, all of it dotted with gas wells. In the distance beyond, the Green River carved toward Desolation. From here, the land between looked no less lovely, no less worthy of protection. "There's enough drilling here," Hoops had told me. "If you want a sacrifice zone, move it to Boulder. Let's have big money fight big money and see who comes out the winner."

AND SO IT WAS THAT MY QUEST led me back home. As I drove down I-25 toward Longmont and Boulder, ranchland and sporadic cornfields gave way to new subdivisions, and soon enough, the giant scaffolds of drill rigs came into view, towering over car dealerships, strip malls and houses, with the massive pyramidal bulk of Long's Peak looming to the west on the Front Range skyline. I looked at the dash: "Remaining Oil Life: 74%." Perhaps Hoops was right, I thought. If we're worried about peoples' health and welfare, and if we truly value the wilder parts of the world, then our wealthy and bustling suburbs and cities are *exactly* where we should be drilling. Not because anyone deserves the accompanying nightmares, but because no one does.

Drilling was going strong in the West's rural oil and gas basins long before fractivists like Fissinger began fighting, long before fracking was a household word. But companies have figured out how to develop much more of our energy domestically, tapping giant, once-marginal reserves and drilling more wells at a faster pace to maintain production. As drilling has reached more densely populated areas in the West, or rural areas not far from places like New York City, oil and gas development has at last begun grabbing regular national media coverage. And vastly more people have been forced to directly confront the costs of something they've always used freely.

That awareness is already having an impact, inspiring reams of new research into how development affects air, groundwater, health, economies and more. It's helped spur both federal and state governments to begin reining in an industry that had long enjoyed a regulatory carte blanche. Colorado, arguably the Western focus of this clash, is widely regarded as a leader, though its rules are hardly perfect. Over the past several years, the state has moved to better protect wildlife, force disclosure of jealously guarded fracking fluid chemicals, increase setbacks from homes, and require companies to test nearby groundwater before and after drilling. Most notably, last winter it passed strict industry air pollution controls that are the first in the nation that aim to curtail releases of methane, the primary component of natural gas that also happens to be a potent greenhouse gas.

"It's sort of like in forestry," Pete Morton, a Boulder-based economist with the Conservation Economics Institute who served with The Wilderness Society for 18 years, told me over breakfast at Hotel Boulderado. The sound of jazzy music and clinking flatware wafted over the mostly empty tables as a hard rain fell outside. "They used to put in the beauty strip to hide the clear-cut. What we've done is cut down the beauty strip on oil and gas. Now we have all these eyes on industry." And some companies are clearly paying attention. When Colorado officials rolled out those new air measures, they did so alongside representatives from three of the state's major operators, Noble Energy, Anadarko Petroleum and Encana, which worked collaboratively with the pragmatic environmental group Environmental Defense Fund and the state to help develop the proposal.

More significant, though, is what this new awareness may do to galvanize action around the root cause of the problem: our own energy use. As Patty Limerick told me before I embarked on my journey, those same suburbs railing against drilling were enabled by the availability of cheap gasoline. "We live," Limerick said, "in the era of improbable comfort made possible by a taken-for-granted but truly astonishing infrastructure. Now that we have peoples' atten-

Well pads dot the landscape in Utah's Uinta Basin, above left. George Burnett, owner of Covers & Camo in Vernal, holds a sign outside in support of the oil boom that has made Vernal the nation's sixth-fastest-growing "micropolitan area" of 10,000 to 50,000 people.

MICHAEL COLLIER, ABOVE LEFT; AP PHOTO/THE SALT LAKE TRIBUNE, FRANCISCO KJOLSETH, ABOVE

> "They used to put in the beauty strip to hide the clear-cut. What we've done is cut down the beauty strip on oil and gas. Now we have all these eyes on industry."
>
> —*Pete Morton, Boulder-based economist with the Conservation Economics Institute*

tion, maybe this production-consumption thing can get thought about."

There are signs that this is beginning to happen on a scale that transcends a few solar homes and plug-in vehicles, Morton told me. Liberal Boulder, often dismissed as the ultimate Not-In-My-Back-Yard community, is trying to become its own electrical utility in order to reshape its power supply around renewable sources balanced by natural gas. As part of that effort, a working group that includes Morton is looking at how the city might use its buying power to influence the way that gas is extracted by adopting environmental certification standards not unlike those developed for the sustainable timber industry. Someday, Boulder might replace natural gas entirely with biogas, generated perhaps by excess manure from Greeley, a former cowtown ironically positioned in the midst of Colorado's oil boom.

Little of this comforts fractivists like Fissinger, who worry that regulations are a cynical political ploy that will only encourage people to embrace a dangerous and inherently unsustainable status quo. And indeed, whatever you believe about the risks of fracking and horizontal drilling, the techniques have ensured that scarcity won't be the crisis that weans us off hydrocarbons in time to avert the worst effects of climate change. No matter how completely we might mitigate drilling's local impacts, no matter how carefully we protect special places, near or far, oil and gas developments ultimate externality, global climate change, still looms.

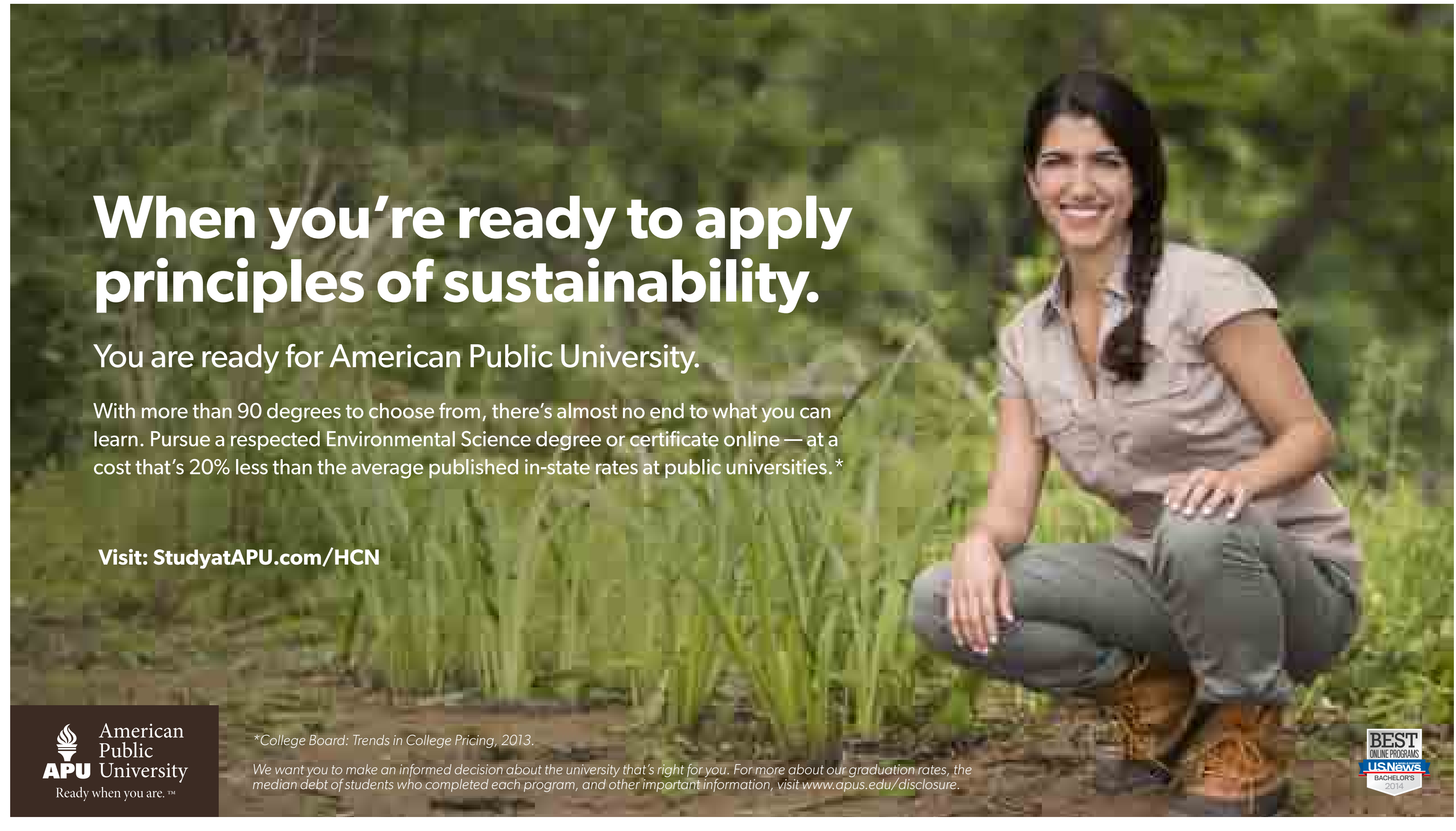
It's a conundrum that demands the "ideal future" that Yi-Fu Tuan envisioned in *Topophilia*, his seminal 1974 work on cultural geography. A future wherein we give our deepest loyalties to home — the place we love beyond all others, Tuan writes, the shelter of memory and family — and "at the other end of the scale, to the whole earth."

And therein lies the true power of the hardliners' "no." "The reality is that we're not going to flip a switch tomorrow and everything's OK," acknowledged Jeremy Nichols of the environmental group WildEarth Guardians, which hopes to leverage anti-fracking energy to influence public-land battles over oil and gas in the absence of higher-level climate policy. "But I don't want to say, '(development) is OK here.' Some of it is going to happen whether I say yes or not. If no one points out the costs or says no, there's really not going to be incentive for anyone to develop something different. Crisis fuels innovation and invention and creates opportunities." In other words, "no" can squeeze us toward an acceptable "yes." And expanding development is giving us a bigger, more widespread NO than, perhaps, we've ever heard before — a "no" that seems to hint at genuine change.

With the rise of fractivism, "you have people who were never involved in these issues before, and they're moving the goal posts 200 yards down the field," Morton said as he polished off his eggs benedict. "I think it's the rebirth of the environmental movement."

ON A CLEAR NOVEMBER SATURDAY, Vic's Coffee in north Boulder buzzed with hip 20- and 30-somethings grabbing late-morning lattes and pastries. Petroleum geologist Matt Silverman, a fit 61 years old with salt-and-pepper hair and a tidy mustache, blended in surprisingly well, lounging on the sunny patio. He led me to his SUV, apologized as he moved some yoga equipment, then ushered me into the front seat.

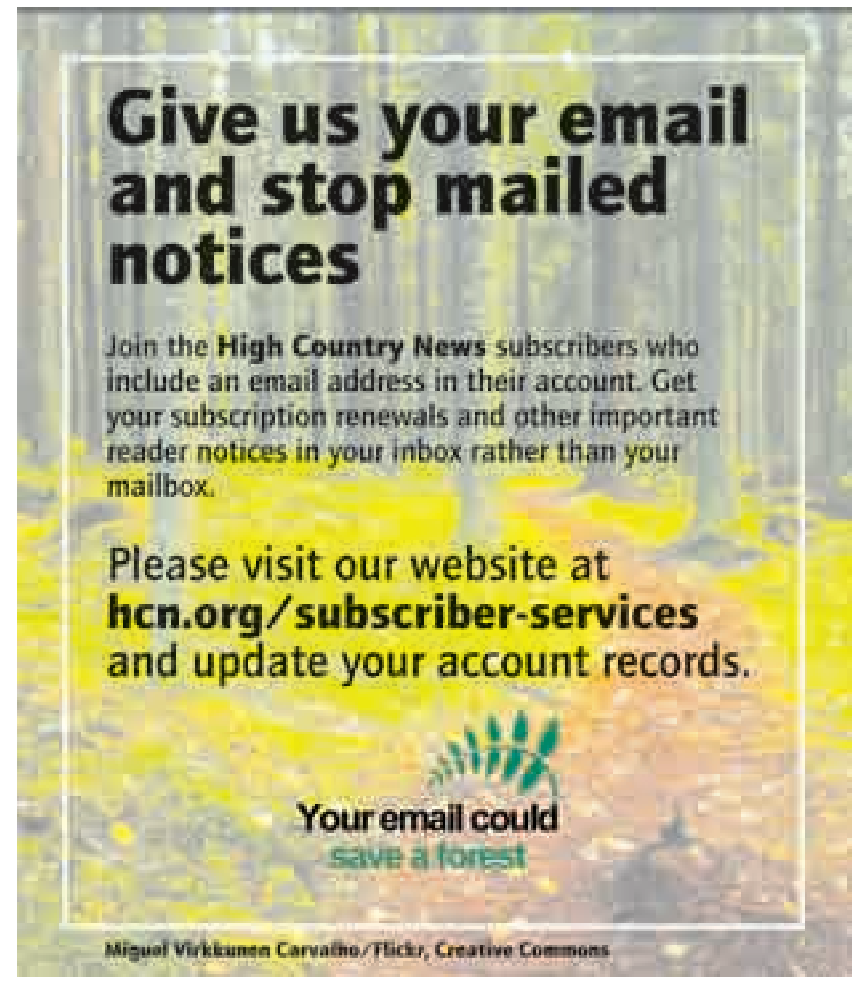
A little ways northeast of town, we pulled off the road at a barbed-wire fence. Beyond it, at the center of a wedge-shaped plot of rib-high grass with a clear view of Boulder's iconic Flatirons, was an ancient-

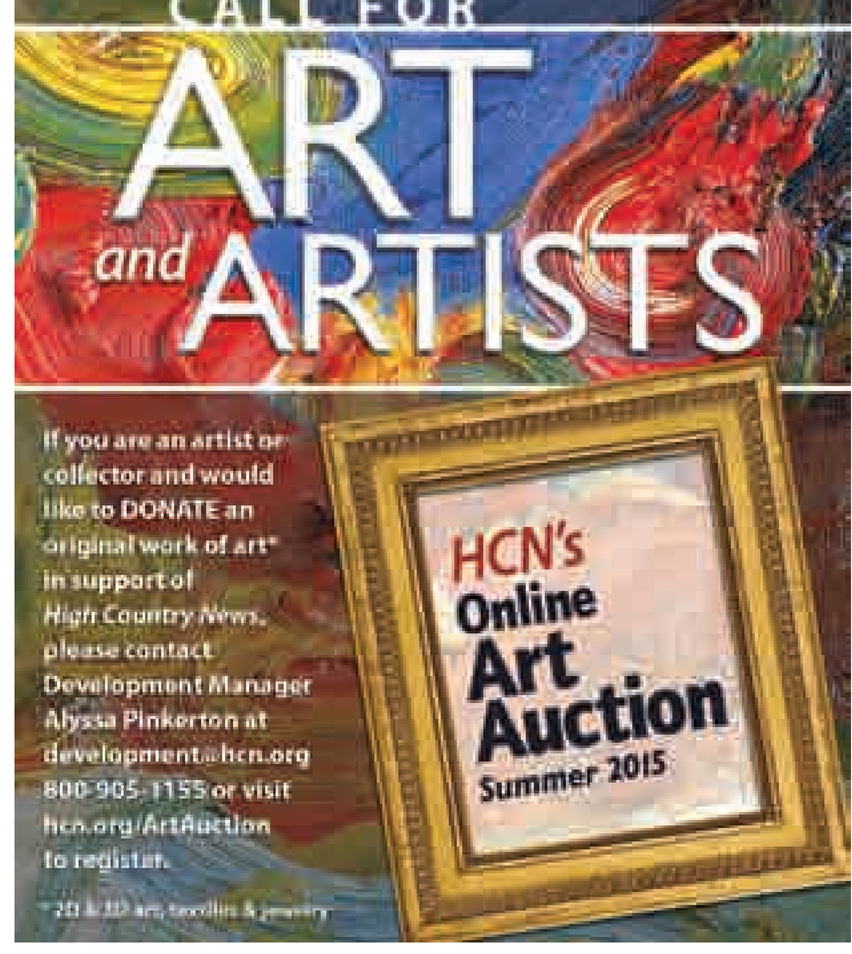


looking pumpjack and tank coated in chipping green paint and rust. This is the McKenzie #1-21 — the first producing, and the last remaining, well from a 200-well oil field that has since been replaced by city open space and stately homes. The equipment is from the '50s, Silverman explained, but the McKenzie was drilled in 1902 and produced until the 2000s. This was the first field in the basin that is now booming to the northeast, and helped establish Denver as the energy capital of the Rocky Mountain region, he said. "Let's not turn our back on any of our history. Let's recognize all of it."

I looked past the pumpjack at the three buzzing highways hemming us in, planes floating into the nearby municipal airport, and, to the south, the boxy complex of National Center for Atmospheric Research offices where scientists study climate change. If the McKenzie is a monument, I thought, does it celebrate all that hydrocarbons have given us and, as Silverman argues, provide a lesson that the scars of their extraction are fleeting? Or could it become a memorial to a world that we no longer want — a reminder that, if we push hard enough, this history could someday be just that, the past and nothing more? ■

A neighborhood in Erie, on Colorado's Front Range near Boulder, backs up to a well pad. EVAN ANDERMAN





Occupy *continued from page 23*

A lot of things started converging in my mind: Occupy. The fast food workers' "Fight for $15." The outrage and despair over the killings by police of Michael Brown, Tamir Rice and Eric Garner. ...

about the climate fight being not just about the environment, but a web of "intersecting oppressions." I understood that poor communities of color had long shouldered an unfair share of pollution, and that climate change promised to punch them hardest again. But was the climate fight really of a piece with the immigration fight? The struggle against police brutality? The connections weren't always obvious, and in any case, was it possible or practical to take on everything that was wrong with the world at once?

Then, on a December evening, after wrestling with writer's block in my Santa Fe office, I tackled what seemed like a more manageable task: applying for health insurance through the new marketplace. I'd left my staff job at *High Country News* about seven months earlier, to see if I could make it independently. My husband, a potter, had also recently started his own business. I typed in our unimpressive income, and up popped our options. The cheapest plan would cost around $225 a month. If we had a baby, a brochure informed me, it would cover $1,240 of average delivery costs, and we'd pay $6,300. This was insurance, new and improved? None of it was affordable. None of it. As I drove home, I cried alone in my car, then a little more in my kitchen. I felt ashamed. And then I got pissed.

The healthcare law had been carefully designed to win support from private insurance companies, but it still resulted in crappy options that squeezed scrappy people like us. It was hardly surprising, but it didn't seem fair. Then it occurred to me that maybe in that moment, I was angry about climate change, too. My basic complaints about the healthcare reform sounded pretty similar to the critique the activists I spoke with made about the failed 2010 federal climate bill: It tweaked a broken system at its edges, appeasing polluters for political viability rather than proposing the kind of changes the crisis actually demanded. It was a false solution, people told me, and many didn't care that it failed. I thought about their argument about "root causes," and recognized twinges of their anger in myself.

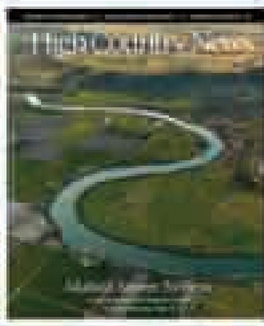
A lot of things started converging in my mind: Occupy. The fast food workers' "Fight for $15." The outrage and despair over the killings by police of Michael Brown, Tamir Rice and Eric Garner. All had one thing in common: the sense that our society is designed to work for some and not for others, with the balance tipping ever more in favor of those who need the least help. When I applied for health insurance, I felt something similar: The deck was stacked, against me.

The *New York Times* recently ran a story about the fight for $15 an hour, profiling one of the campaign's leaders, Terrance Wise, a father of three who worked at both Burger King and Pizza Hut and still had trouble paying rent and utility bills. When he asked his manager at Pizza Hut for a raise, she showed him the pay policy, saying she could boost his pay at most 25 cents after three years, even though he made less than $8 an hour. "If I gave you 25 cents," he recalled being told, "that means you're perfect."

"It makes me angry, and you should be angry, that these billion-dollar corporations are robbing from my kids and your kids," Wise said in the story. "So we're going to have to stand up and fight back." It was the same sentiment I'd heard in the Book Cliffs. People wanted a society with a little more humanity, one whose outcomes are less determined by corporations that serve only their shareholders, valuing profits above the stability of the atmosphere or the dignity of their workers.

When I first arrived at the vigil, I imagined the activists as agitators on the fringe of the environmental movement. They saw themselves, instead, as one twitchy muscle in a much broader and building unrest. I was starting to see them that way, too.

Be as frank as possible. They're not like regular people. That may be true, but these are not regular times. ■



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A protester sits atop a pile of rocks dug from the pit at the PR Springs site. COURTESY TAR SANDS RESISTANCE

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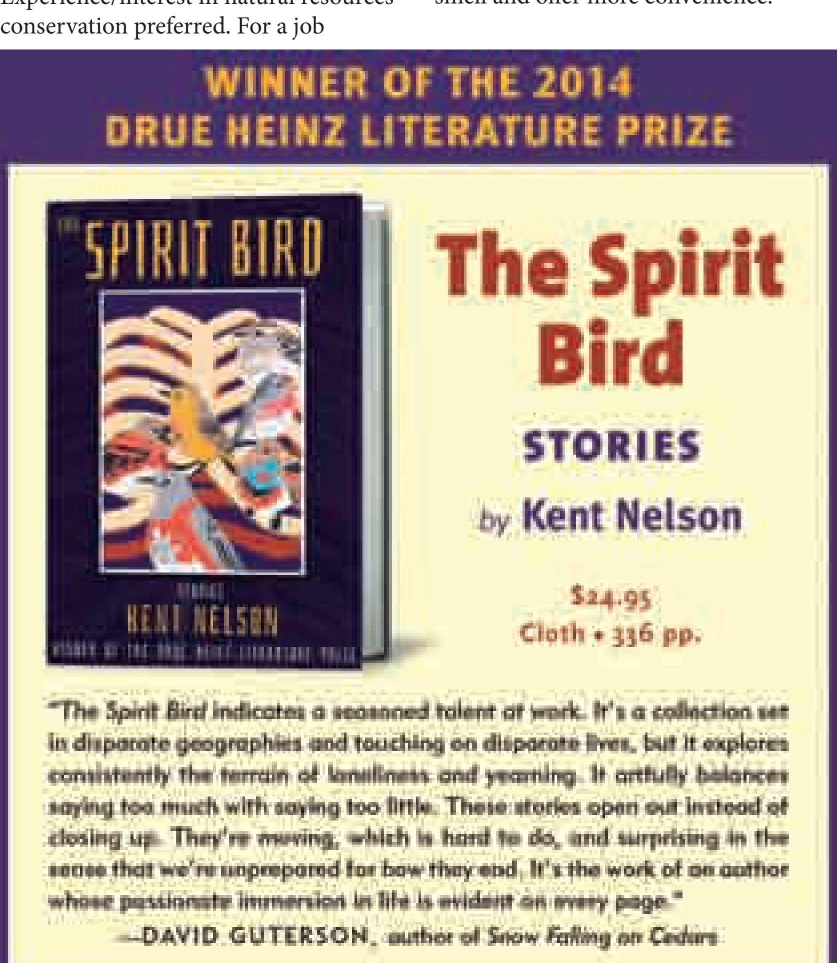

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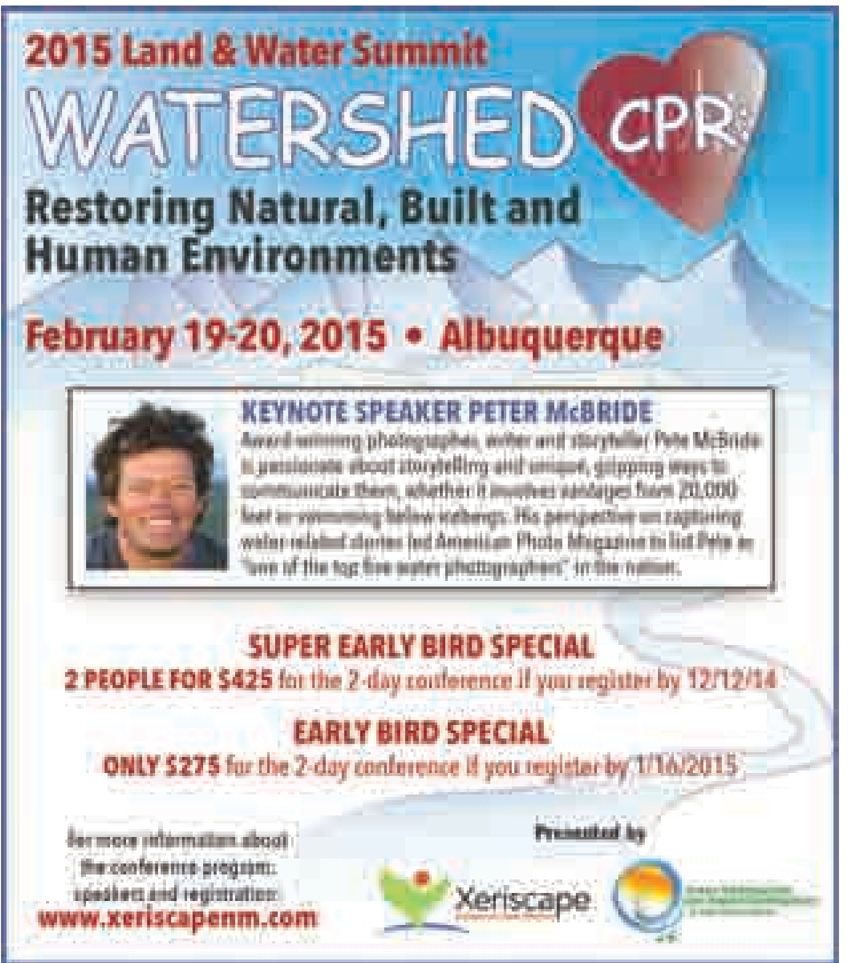

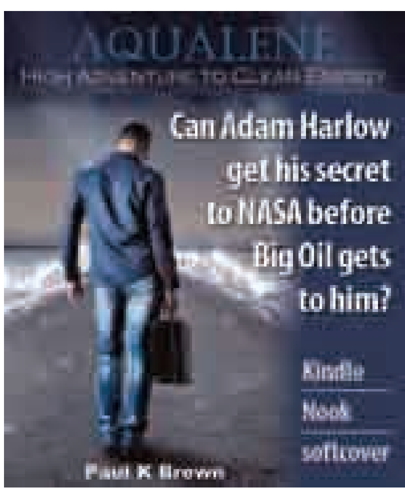

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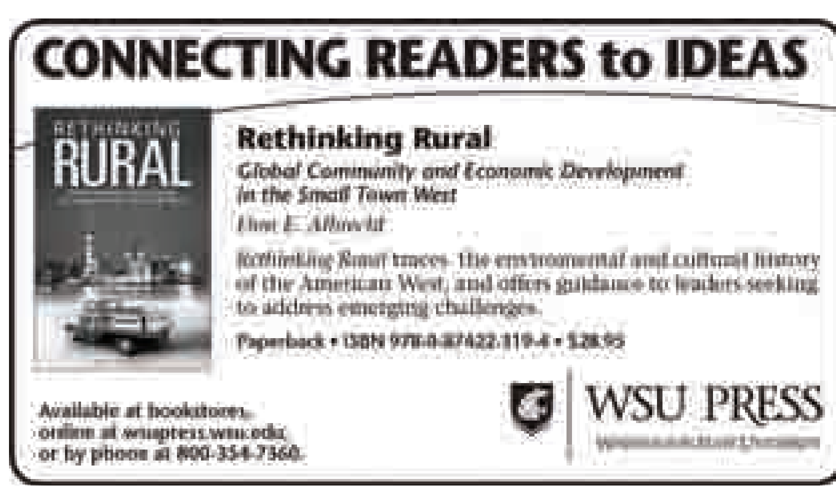

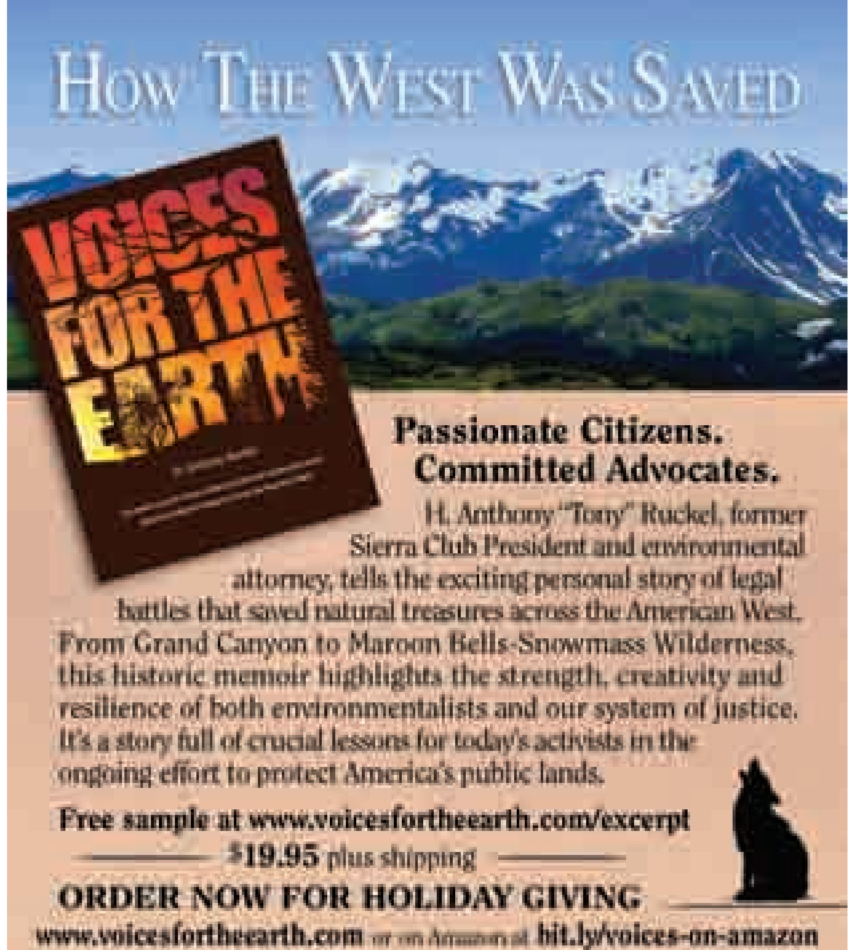

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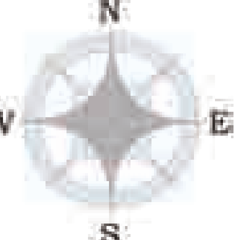


A Hot Day's Night

FICTION BY PAOLO BACIGALUPI
ILLUSTRATIONS BY AIMÉE VAN DRIMMELEN

"Pass me that allen wrench," Charlene said.

Lucy hesitated, considering the ethical boundaries of journalism, then stretched across Spanish roof tiles for Charlene's toolbox. Warm metal clinked under her fingers. The wrench glinted in the moonlight as she passed it over to Charlene, where she had lifted a solar panel and was fiddling beneath it. The black shadow of Charlene's body shifted. Metal ground against clay tile. Something cracked, a sharp, vandalistic report in the silence of the suburb.

"Hold this up," Charlene said. "I need to get underneath to the alarms."

"You didn't say anything about alarms," Lucy said.

"You think utilities just leave the good stuff lying around? Just because the people are gone, don't mean the electric company don't want their electricity. Now hold the panel up, will you?"

With a sigh, Lucy shoved her arm into the gap. Charlene's flashlight flickered on, its red beam illuminating the hole between the panel and the roof. "Hold it there." Charlene pinched the penlight in her teeth, peered into the shadows. "Well, I'll be damned."

Lucy didn't like the tone of Charlene's voice. "What now?"

"They got it set to close a circuit with the grid current if we cut this loose. Electrify the whole damn roof. Do me a favor and don't move. I don't want to end up as a crispy critter."

"Christ. I thought you said you knew what you were doing."

Charlene laughed. "I thought you said you wanted to see the real Phoenix." She crawled over Lucy, and starting rooting through the toolbox. "You know where my snips got to?"

"I'm trying not to get electrocuted!"

Charlene grinned, a flash of white teeth and a black gap where her incisors had gone missing. "What's the matter? Too much story for you?"

Lucy didn't take the bait. She kept her arm grimly in the gap, holding up the panel and trying not to think about 220 volts ripping through her body. She wondered if the sweat covering her would make her a better conductor. One hundred-and-two degrees at 2 a.m., and the temperature probably wouldn't make it down to a hundred before dawn. She blinked salt out of her eyes, trying not to think about sweat beads dripping from her arm and closing some circuit that would leave her as fried scavenge meat for crows and magpies and vultures.

I thought you wanted to see the real Phoenix.

From Lucy's vantage, she could see plenty of the city sprawling across the basin. In the past, at this time of night, it would have been a heavy quilt of light, ending only where mountains and wilderness designations pushed back against development. Now, though, abrupt geometric holes of inky blackness punctured the blanket. Building-block cutouts of darkness as if a child had taken scissors and started cutting patterned holes, industriously trimming swatches out of Phoenix. A subdivision here. A development there. A whole township, cut right from the heart of the blanket.

In the daytime, with desert sun searing down, the metro area's sprawling suburbs appeared largely equal. Chandler was the same as Scottsdale, was the same as Gilbert, was the same as Avondale or Peoria or Mesa or Fountain Hills. All dusty, all the same. But at night, these gaps were revealed. Places where the aquifer had collapsed after overpumping. Places where inter-city water-sharing agreements and hydro development contracts had shattered. Places where Central Arizona Project water no longer re-filled the aquifer, and where water wells had sucked cones of depression so deep and wide that others were left pumping sand. Points of failure in an overstressed system, that now showed as black swatches of hollowed houses, where nothing moved except coyotes and the occasional Merry Perry refugee.

Charlene's Phoenix. The real Phoenix. The only aspect of Phoenix that seemed to be growing.

Charlene finally found her tools and returned to the panel. She flopped prone and dug into the wiring. In the far distance, traffic rumbled on the broad boulevards that crisscrossed the city, but here in the abandoned subdivision, all was quiet except for the rattle and click of Charlene's tools.

It was hard to write stories about silence, Lucy thought. Most journos who covered the drought spent their time out near the borders of California and Nevada and Utah, filing stories about Arizona barbarism and Merry Perries, who'd fled out of Texas only to be crucified in the medians of the interstate.

Sometimes they wrote stories speculating about who was responsible for attacks on the Central Arizona Project, describing the exquisite vulnerability of a canal that stretched across three hundred miles of burning desert just to give Phoenix a sip of the Colorado River. They spun conspiracy theories on whether it was California or Las Vegas to blame for repeatedly bombing this last critical IV drip, always tying it to the apocalyptic depths of Lake Mead and Lake

Havasu and the rest of the Colorado's shrinking storage capacity, no longer able to share. These stories at least had a few pictures of blue lake reservoirs with white bathtub rings on red sandstone to recommend them. The reporters fed eagerly on the scarcity and mayhem and conspiracy, wrote their stories, and then jumped on the next flight out, eager to get back to places where water still came out of the tap.

Meanwhile, Lucy stayed, and hoped for something deeper.

"Ha!" Charlene held up a triumphant tangle of wiring. "We're not frying tonight!" Her gap-toothed smile flashed in the darkness. "Told you I know what I'm doing."

Charlene's missing teeth: They had first caught Lucy's eye while she was drinking in the late afternoon up on the rooftop of Sid's, watching the regulars as they reclined under raggedy umbrellas and passed a .22 down the line, taking potshots at whatever moved in the half-built subdivision that Sid's occupied, like an outpost in a stick-frame construction wilderness.

And then Charlene had emerged, climbing up the ladder to the roof, buying a round for everyone because she'd just scored big, grinning that gap-tooth smile. As soon as Lucy figured out what Charlene did for a living, she knew this was the story that would break open the silence of Phoenix's emptying subdivisions.

The suburbs were quiet, but Charlene was loud. Lucy would write a little about the woman's background — and then shift focus, different angles for different publications. She could do one about the changing nature of Phoenix sprawl for *Google/NYTimes*. A piece for *The Economist* about the scavenge economy rising from the ashes of the old construction and sprawl economy. A longer piece for *Kindle Post* that she could keep the rights to. Three stories, at least, easy money. Except that Charlene's story came with strings.

"Duck!" Charlene whispered.

"I can't!"

Headlights shone in the darkness, coming around a curve and illuminating their street.

It was too late to run. Lucy smashed herself flat against the roof tiles, feeling like a bug on a microscope slide. The SUV was nearly silent, riding on its batteries. Only the hiss of its tires as it drove up the dust-rutted street announced it.

"You ready to run?" Charlene whispered.

"Run where? My truck's parked in the garage down there!"

"Oh yeah." Charlene chuckled. "Good thing I closed the garage door. Otherwise they'd nail us for sure. Or you, at least. You, they'll definitely track down. Probably better hold still."

Down on the street, the SUV seemed to be slowing.

"I'll bet you're wishing you were back in Connecticut right now, writing stories about seawall breaks and hurricanes, instead of lying here waiting to get your face kicked in."

Lucy bit off an angry response. Maybe she could just explain herself. Explain that she wasn't really with Charlene at all. Just a journalist doing a story. Not a thief. Not part of the story. Just writing about the lady they were locking up —

The SUV eased closer, rolling just below them. The whole area was illuminated, daylight invading nightscape. Every instinct told Lucy that they'd been spotted, that she needed to bolt.

Charlene gripped her wrist, hard. "Don't you dare rabbit now, sweetheart."

The nearly silent electric vehicle slid past, reached the end of the street and disappeared around another curve. Lucy let out a breath she hadn't realized she was holding.

Charlene scrambled up and grabbed the solar panel she'd been working on. Started wrestling it down to the edge of the roof, moving quickly.

"You're lucky we got a lazy one. Sometimes they're motivated, swinging their searchlights all over, using their damn eyes to look around. Nothing worse than a motivated junk patrol."

"Are there a lot of those?" Lucy could still feel her heart pounding.

"Nah. It's way easier, now. Used to be that everyone thought the owners would come back. They kept saying Roosevelt Lake would fill up again, or there'd be enough water in the CAP to share around. Made junk patrol feel like they had a real job. Protecting private property and all that shit." She snorted. "But the reality is, there's just not much use for granite countertops or three bathrooms in a house if there's no water going down the toilets or filling up the sink. These places deserve to be scavenged now, and junk patrol knows it. Biggest problem is getting to the good stuff first, before someone else does." She set the panel at the edge of the roof. Waved to Lucy. "Grab a crowbar. We need to get the rest of these panels down before they come back."

"I didn't agree to that. I'm just here to write your story."

Charlene shot Lucy an irritated look. "You want to be here when the junk patrol loops back around? Maybe get a smile like mine?"

"I didn't say I was going to help you —"

"Steal?" Charlene supplied.

"— take things. We agreed I was going to write your story."

Charlene shrugged. "Well, you don't get shit unless you help. The way this works is you put your sweat into my business, and I put a little of my own sweat into yours. We help each other out, right? Either that, or you can go back downtown and hang with the rest of the out-of-state reporters, drink your hotel martini, file some vulture story about Merry Perries getting strung up on the interstate and get the hell out. Your choice."

Lucy hesitated.

"Can't make an omelet without breaking eggs," Charlene said.

Eggs.

Ethics.

Lucy remembered a J-school professor of hers, Shondra Goh, talking ethics and boundaries and the dangers of identifying too much with subjects.

She sighed. "Give me the crowbar."

"That-a-girl!"

They went to work, prying up each panel, Charlene crouching down to cut wires and disable the silent alarms that would summon the junk patrol. Lucy handed allen wrenches and snips and diamond-bladed hacksaws, and Charlene dismantled twenty kilowatts worth of solar panels with medical precision.

"You know I used to install these systems?" Charlene said. "Back when people were building them?" She chuckled. "And now here I am getting paid to rip them out."

Lucy didn't answer. With each crack, pry and heave, she wondered if she'd finally become too compromised to call herself a journalist. Her and her stories: Before she'd moved down to Phoenix, they'd seemed so nicely compartmentalized. And now, here she was, pulling her truck out of the garage so they could load solar panels into the back. Taking part in Phoenix's most popular pastime.

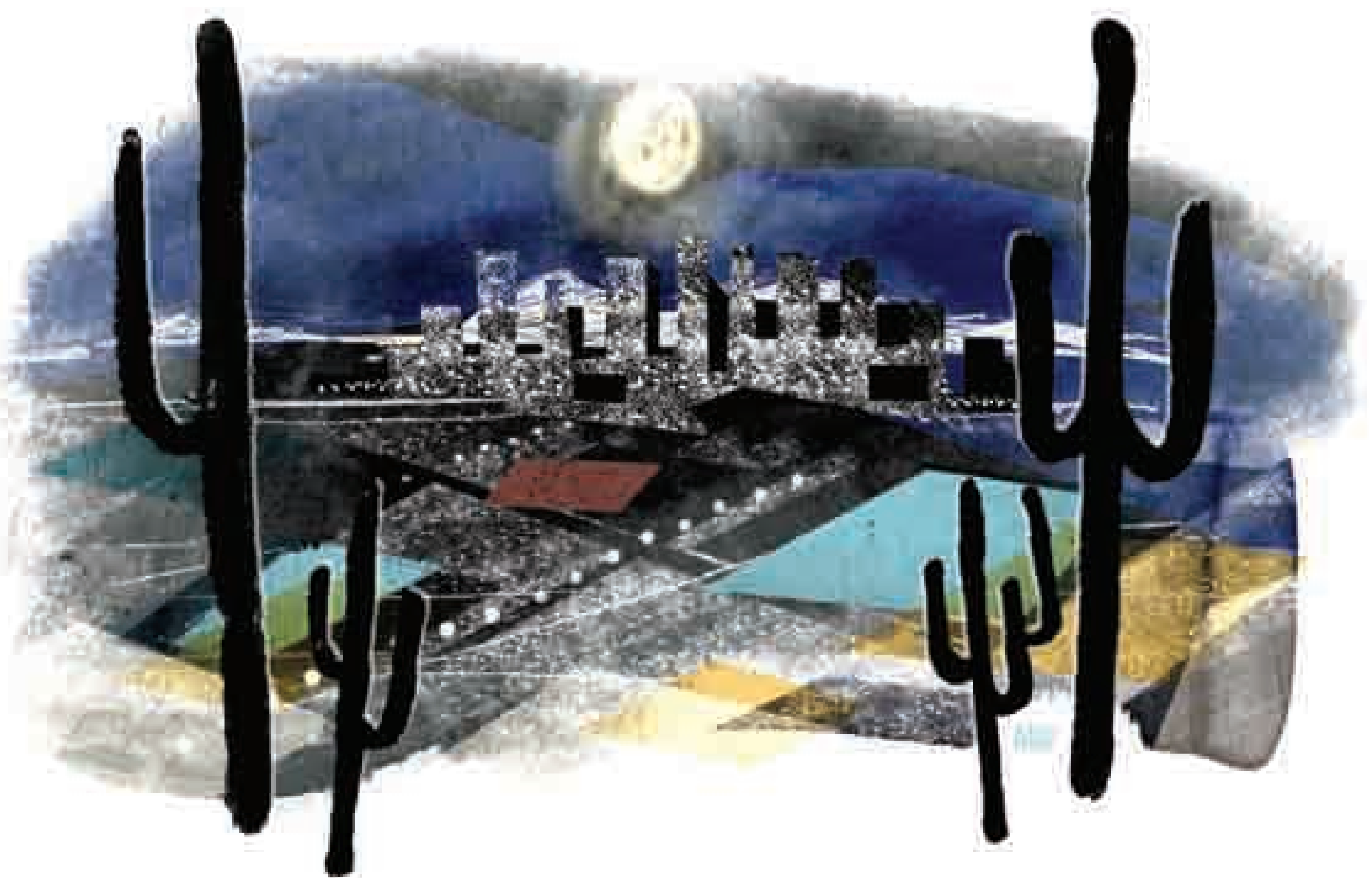
Maybe that was the story, Lucy thought, as she heaved herself back up onto the roof. The real story. Not that Charlene had remade herself as a pillager of other people's lives, but that Phoenix had a way of stripping away a person's moral compass. Once it got bad enough, you got desperate enough; the person you started out as wasn't the person you ended up as.

"Hey, Charlene?" Lucy asked as she lowered another panel over the rim of the roof and into Charlene's waiting hands.

"Yeah?" Charlene took the panel with a grunt, and hauled it over to set it with the rest in the back of Lucy's truck.

"How come you didn't leave? I mean. When you could?"

Charlene returned and held up her hands, waiting for Lucy to hand down the next panel. "Hell. I don't know. Guess it just



didn't seem real to me. Slow apocalypse, you know? In hindsight, it all looks real clear. But at the time?" She got hold of the panel as Lucy lowered it, set it down on the driveway's hot concrete. Leaned against it. Her sweat gleamed on her face in the moonlight as she looked up at Lucy. "You could kind of see it creeping up, like, out of the corner of your eye, but you couldn't see it up close and sharp." She shrugged, picked up the panel and hefted it into the truck with the rest. "We're good at doing shit like running away from the junk patrol. I mean, that's a threat you can understand, right? But who the hell thinks about running away from an extra hundred-degree day?"

Charlene turned sharply at a noise. "What's that?" she called. "What do you see up there?"

Lucy straightened. One street over, headlights glowed. "Junk patrol!"

"You were supposed to keep your eyes open! You're the one up top!"

Lucy didn't bother saying that it was hard to keep a lookout and dangle panels over the edge of a roof. She took a breath and jumped. Her ankle twisted as she hit the driveway, but she staggered for the truck, limping and hopping while her ankle flared. She yanked open the truck door and heaved herself inside.

"Get it back in the garage! They're almost here!"

For a horrible moment, Lucy couldn't make the truck start, but then it came alive. The truck's headlights came on automatically, a beacon announcing that there were thieves in the neighborhood.

"What are you doing?"

Lucy killed the lights.

"Come on! Come on!"

"I'm trying!" Lucy jammed the truck into gear and roared into the garage. Charlene slammed the garage door down. Lucy jumped out, almost fell as her ankle flared again.

"Did they see us? Did they see us?"

"Shut up! I'm trying to listen."

They both pressed their ears to the metal of the garage door, straining for tell-tales. Listening for voices. For radios. For someone calling for backup. A minute ticked by, while blood pounded in Lucy's ears and sweat dripped from her nose.

With the truck off, the garage was pitch black. In the silence, Charlene's form rustled. There was a faint buzz and then a firefly of light came on, the purple tip of a cigarette, glowing as she took a drag, illuminating her sun-wrinkled features.

"You want?" she asked.

Lucy took the cigarette. Activated it. Felt the nicotine buzz as she inhaled.

"Never feel as alive as when you think you're about to get your teeth kicked in," Charlene said as she accepted the cigarette back. She started to laugh.

"Would you be quiet?" Lucy whispered fiercely.

"Don't worry. They're gone."

"How do you know?"

"Junk patrol isn't subtle when they're on your trail." She took another drag, then rolled up the garage door. Moonlight flooded in. The air outside was cooler than in the garage. A relief. Fresh after the black heat.

"Nice night," Charlene said. "Bet it gets down to ninety-nine before dawn." She took another drag on the cigarette. "You want to search the house, see if there's anything else you want?"

"I just want to get out of here."

"Suit yourself."

An hour later, just as the dawn was starting to break the horizon, they dropped the panels with a tattooed man who paid Charlene with a wad of paper money along with a Crypto-Cash card. Charlene checked the card value, then pressed the paper money into Lucy's hand.

"What's this?"

"Your share."

Lucy tried to give it back, but Charlene waved her off. "No. Take it. It's yours."

"I can't —"

"You journos always make your money selling stories more than once. Just think of it as another angle on your story."

She climbed into her own truck, rolled down the window and leaned out. "I'll meet you at Sid's tomorrow, and we'll do it again. There's a place down in Chandler that looks like it's probably got twenty-five kilowatts."

"I'm not going again."

"Sure." Charlene laughed. "Keep telling yourself that." ■

Postcards from Fire

Mom,

I am driving. The night bursts. Stars explode millions of years ago and flood the car. Stars explode a hundred thousand years ago and ping off the hood and windshield. Stars explode 60 years ago and flurry in little ground storms around the spinning tires.

Yggdrasil bore the weight of ancient Norse cosmology. Scholars argue over the etymology of the word. Some link it to "Odin's horse;" others to "tree of terror" or "tree of gallows." It is one of many trees of lineage, of memorial, a means of tracing. Just over a rise on Highway 50 in central Nevada, there is a tree covered in shoes. It is old but very alive. No one knows when passers-by began crowning it. There is no plaque or commemoration visible. We can only guess the intent. A sacrifice? Were shoes no longer necessary? Did they just not have far to go?

Dear Mom,

I pull off near the gate. No services, no people, nothing to spare. They call this place Bravo. One of many Bravos, but this happens to be one of the most bombed places on Earth. Pitted sandbox. Playground of those far removed. I walk it, at least what I can. A photographer wants to make this a national park. He documents it tenderly, calls the series Cantos – a nod to Dante, a wink to Pound. We are in deep here. Bravo, bravo.

There is a town in Pennsylvania called Centralia. It is far from this desert. It has burned for 60 years now. A ribbon of coal tucked beneath the crust was ignited by a fire in a garbage dump. This set the minotaur chasing its own tail deeper and deeper into the earth. A town burns; its people are told the fire will burn itself out in a year. The earth swallows a bicycle and a pet; they are told it will burn itself out in five years. A subsidence opens and a child tumbles in, is hospitalized by the fumes. They are told it will burn itself out in 20 years. One year ago, the last remaining residents were forcibly evacuated. Centralia no longer appears on maps. It is like this desert, but honest with itself. It burns; it trysts in the open. Here, the fire is cold, windswept.

Mom,

At ground zero, heat is so intense the sand turns to glass. There are mirrors dotting the desert that are so large, no matter how long we stare, we always disappear. By now, they are covered in sand. And when some unimaginable descendant stumbles upon one, what will he think? Will he look up at the sky and wonder who was so vain, who was looking down?

Region of sacrifice. Erogenous zone of faith. We hold a federal wafer to our lips, take it into the body. Transubstantiation of all things beyond the naked eye. Though we walk in the valley of death, we fear no light. We will rise from the ashes, sweep them from our children's hair and go about their business.

Years ago, we walked deserts. You pointed out geometry in the cracking terrain. Salt flats and playas delicately bent and poised. Thirst metastasizes perfectly, one pattern juxtaposed onto one ever larger. We can follow these lines to the very end, pace the logic of time until overwhelmed. Of course, there is interference. We cluster and dig and cannot help ourselves. Tandem acts of violence — one silent, one loud enough to briefly interrupt the course of the planet. Just as we walked, others paced their offices, following things through to the end.

Your thyroid will be quickly forgotten. There will be pills, but that is charted territory. Your voice will change a little, become rockier, but will have a certain gravitas. Be glad the doctors insisted. Be grateful that other people canceled appointments. Be sure to thank them for their speed.

Dear Mom,

Teller, Oppenheimer and the others were obsessed with walking, their pacing slowly shifting the spin of the earth, wearing away the soil. Problems found solutions in motion. The pressure, the weight of their feet. Did it churn the soil to glass? Oppenheimer lobbied hard for Los Alamos as the site for his work, partly because of its beauty, its mesas. There is no mention of him venturing out to look into Trinity's mirror. Perhaps at night, alone.

I'm told that correlation does not equal causation. That phrase is too much an aside, too slippery on the lips. Too many organs gone missing. Too much iodine substituted for questions. Too few miles to justify comfort. I can't prove anything, and you choose not to think this way. But out here, it is quiet. Out here, no one can tell me I'm wrong. Out here is red-handed.

Mom,

We take cartographic knowledge for granted. If an X is present, we say, "There," say, "Something." If it is missing, we jump to conclusions, say "Nothing." This is the origin of "region of sacrifice," the designation given to the Great Basin. The missing X's denote areas of low population densities and few resources — in other words, wasteland. If you are brave enough or foolish enough to cross the bombing ranges that dot the region, you will see enormous targets painted haphazardly on the earth and huge X's splayed in the sand, pocked and waiting on the next pilot.

I am writing this at the foot of your bed. The desert behind us both. You are sleeping, whole, though your throat is sore. You will want ice when you wake. I have a cup ready. My fingers rest on the cubes, their tips burned ever so slightly. I did not want you to see yourself here, so I took the mirror from the bathroom and hid it beneath the bed. When I grabbed it, it was hot to the touch. ■

PHOTO: MARK ESGUERRA

BOVINE RETRIBUTION

Many things define the West: our vast swaths of public land, our fiercely independent spirit and, of course, our cows and the zany — sometimes disturbing — ways we interact with them, whether living or dead. Consider this *Salt Lake Tribune* headline: "Dead cow clogs Utah slot canyon; rancher's impromptu barbecue makes things worse." You know you want to know what happened. Well, in early December, the cow in question ambled down Peek-a-Boo canyon in southern Utah's Grand Staircase-Escalante National Monument, apparently unaware that ungulates of its ilk are forbidden. When the cow's owner found out, he headed out on his ATV (also forbidden) to retrieve the cow. Slot canyons are skinny; the cow was not, and it became irretrievably jammed. The frustrated rancher then shot and killed the cow. He tried to extract the carcass, first by butchering it, then by burning it. Neither succeeded. As of mid-December, monument staff were still trying to remove the carcass. In the meantime, hikers are forewarned: That thing that smells like a charred, dead cow really is.

And in Pocatello, Idaho, a cow escaped the frying pan in December only to end up in the line of fire. An unhappy heifer bolted from a butcher shop's chopping block, racing out into the town. Local cops gave chase, and the desperate cow rammed an animal-control truck and two police cars, according to the *Idaho State Journal*. Police officers, concerned about the safety of residents, shot the cow once, without result, then again, fatally. The former cow was returned to the meat-processing facility from whence it escaped.

Meanwhile, in Salmon, Idaho, cows have been vanishing at an alarming rate. Modern-day rustlers are believed to be trying to cash in on high beef prices. It's a logical explanation. But then again, with cows elsewhere hiding out in slot canyons and busting out of butcher shops, you gotta wonder. … Is the Cow Liberation Moovement to blame?

CALIFORNIA **The sign says it all.** CAROLYN ROSNER

ARIZONA

Rural Westerners are so accustomed to seeing bears roam residential streets that they barely notice. Except in suburban Mesa, Arizona, where a single black bear sighting sent everyone into a tizzy. After local television channels showed aerial footage of the bear "on the loose" (as if bears aren't supposed to be "on the loose"), running from wildlife officials through an alfalfa field à la O.J. Simpson in his Ford Bronco, folks headed out to watch the show in person. Social media was abuzz, and the bear even got his own Twitter account. Unlike the Pocatello runaway cow, the bear was deemed no threat, and it eluded its tranquilizer-dart-shooting pursuers for several days. Finally, on Christmas Day, it was captured and relocated to more bear-appropriate habitat in nearby mountains.

THE OIL PATCH

If you want to see how plunging petroleum prices are affecting oil country, look at applications for drilling permits (down), rig counts (down, but still higher than this time last year) and rents in the boomiest of the boomtowns, Williston, North Dakota. According to Craigslist, in early January, Williston rents were holding steady, i.e., hovering in the stratosphere: Two-bedroom apartments are still listed for up to $2,500. In other words, the boom hasn't busted. Yet. We checked out the "Bakken Oilfield Fail of the Day" Facebook page, which documents equipment breakdowns and truck crashes, and also serves as a general soundboard for oil-patch workers and residents. There, opinion regarding oil prices is also mixed, with some posters forecasting an imminent crash ("work has definitely slowed down the last two months"), while others cling, cautiously, to optimism. ("Take a deep breath. Do not jump ship. This is the patch. It always bounces back.") And some, though concerned about the impact of low oil prices, see a silver lining, particularly when it comes to what they regard as justice for local landlords: "What goes around comes around. I hope their greed comes back to bite them in the a--."

AROUND THE WEST

In Wyoming, a man was shot by his dog when the dog jumped on a loaded rifle in the backseat of the car. The man survived; the dog, as far as we know, avoided arrest, without having to argue about standing its ground. Twenty-one elk died in Colorado after falling through the ice on a reservoir south of Pagosa Springs. When a moose was buried by an avalanche in Hatcher Pass, Alaska, in late December, a group of passing snowmobilers dug it out. "It didn't even fight us," a rescuer told *Alaska Dispatch News*. "It was like, 'Help me. Help me.' It was totally docile and let us touch it. It just (lay) there." The moose survived, apparently unharmed. And officials from Canada's national parks are placing red plastic chairs, costing $550 per pair, at various locations in the parks to help people "connect with nature."

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.

High Country News

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> "I saw three bright white snowshoe hares in small snow patches on an otherwise dull brown turf. **I hope the rabbits make it through the winter**, and I hope they can adapt to climate change."

Andy Gulliford, in his essay, "Caught wearing the wrong color," from Writers on the Range, www.hcn.org/wotr