Welcome to Planet Water: Time for a Reverential Rehydration Revolution
By BROCK DOLMAN // PAGE 16
An essay of wonder and appreciation on the properties of H₂O, the gift of Earth, the Water Planet, and key to life.

The People’s Water Rewilding Our Lives
By BETSY DAMON // PAGE 22
Takes us on a journey with water and the lessons the author has learned about her place as a human being sharing the planet.

A Water Toolkit
By BETSY DAMON // PAGE 27
Ideas and information to assist people seeking to restore the place of water as the foundation of planning and design in towns and cities.

A Conversation on Wildness
By GAVIN VAN HORN & JOHN HAUSDORFFER // PAGE 39
A wide ranging conversation about the meaning of wildness and thinkers who have shaped our ecological sensibility.

Healing the Urban Wild
By GAVIN VAN HORN // PAGE 49
A meditation on the work of Greencorps Chicago, on wildness in urban places, and on the difference between discovery and recovery in our relationships with nature.

On the Wild Edge in Iceland
By BROOKE HECHT // PAGE 56
A story of ecological fieldwork in Iceland and encounters with forested valleys, tree lines, ecological disturbances, and other magical things one finds there.

The Edge of Anomaly
By CURT MEINE // PAGE 62
Tales from the Driftless Area, where flat land wrinkles in southwestern Wisconsin because it avoided glaciation and where the traces of natural and cultural history tell a fascinating story.

Think Here
Earth Ethics
By BRUCE JENNINGS // PAGE 4

CHN Bookshelf // PAGE 87
The Last Word
Democracy and the Climate Crisis
By KEVIN CLARK AND ANJA CLAUS // PAGE 88

Remembering George Rabb
By BROOKE HECHT AND GAVIN VAN HORN // PAGE 14

On A Force of Nature: An Interview with Arthur Melville Pearson
By JIM BALLOWE // PAGE 68
A conversation with Arthur Melville Pearson of the Gaylord and Dorothy Donnelley Foundation and author of Force of Nature, a biography of leading conservationist, George Fell.

The Trees of Maine
By JIM KROSSCHELL // PAGE 76
The author packs up Thoreau and a mind full of fascinating thoughts and takes us on a journey into the forest world of Maine.

The New Geomancy
By KAREN JACOBS // PAGE 84
The ancient practice of geomancy presumes that a true union of humans with the natural world is not given but earned.
Every four years the federal government produces a National Climate Assessment. The latest study has been scientifically approved and is ready for public release, if the Trump administration does not suppress it. According to a copy obtained by the *New York Times*, the report affirms that the average temperature in the United States has been rising rapidly since 1980. It notes recent advances in attribution science that link climate warming in the United States to aspects of regional and national weather patterns, such as longer and more severe heat waves, more severe rainstorms, and drought. These are events and trends felt by ordinary people, who are economically and socially affected in tangible and direct ways. As everyday life increases awareness of these realities, perhaps the motivation to support climate action policies and measures politically will also become stronger. I hope so.

One can hope, yes, but many must also take steps to facilitate and advance such political support. This is the imperative of our time. As Earth System scientist, Johan Rockström, aptly put it: “We need a mind-shift to reconnect people with nature, societies with the biosphere, the human world with Earth.” The intellectual and educational side of it can begin by realizing that a new page has been turned in the long story of relationships between humans and nature; and that the planet Earth won’t tolerate business as usual much longer without deleterious consequences. Earth requires of us new conduct in the future in order to preserve precious conditions of the past.

In 2016 a working group of geologists proposed to the International Geological Congress a change in the current periodization of Earth history. The proposal declares that the Holocene (the “entirely new epoch”) has ended, and in approximately 1950 a new epoch called the Anthropocene (the “human epoch”) began. The planet now bears in its sediment, its flesh, not only the fossilized remains of *Homo sapiens*, but also the indelible traces of humankind’s tampering with physical and chemical realities. This human imprint is not simply a short-term reshaping of natural materiality on a limited scale—as the term “ecological footprint” suggests—but reveals new, long-lasting, artefactual materialities arising out of human activity with accelerating pace and sufficient scale that the works of humankind are altering the functioning of planetary systems and cycles. Much of this has to do with the extraction and use of stored energy from fossil carbon, but it is not only that. As surely as we are currently editing the genome, the core of all living things, we are also, and have been for some time, editing the earth, ground of all life as we know it.

The Holocene designates a time of stable and mild climate since the last Ice Age ended about twelve thousand years ago. “The Anthropocene marks a new period in which our collective activities dominate the planetary machinery,” says Chris Rapley, a climate scientist at University College London. “Since the planet is our life support system—we are essentially the crew of a largish spaceship—interference with its functioning at this level and on this scale is highly significant...the shift into the Anthropocene tells us that we are playing with fire, a potentially reckless mode of behaviour which we are likely to come to regret unless we get a grip on the situation.”
On this view, the Anthropocene must be marked by a new sense of obligation and care. Now that we know the extent of our influence, stability and change in planetary conditions are no longer simply imposed on humankind by natural necessity, they become part of our ethical remit, particularly the continuation of climate stability and other favorable aspects of the Holocene. Others see more transformative changes in both human and nonhuman being in the post-Holocene epoch (whatever we call it); changes that will require not only a new ethical understanding but a new ontological one also. For example, Donna Haraway eschews the rather species-narcissistic designation, Anthropocene, and proposes that Earth’s emergent condition be called the “Chthulucene,” from the Greek meaning in or under the earth. This shifts the focus away from human power and responsibility toward a new re-grounding or Earth-dwelling for human understanding; a time marked by “the sense of thick, ongoing presence, with hyphae infusing all sorts of temporalities and materialities.”  

There are many mind-shifts coming in the post-Holocene having to do with scientific evaluations of resilience, moral evaluations of conduct, and aesthetic evaluations of form.

To define a new geological epoch from a scientific point of view, some empirical markers or signals must be found that occur globally and will be (or already are) incorporated in the geological record. Radioactive elements newly introduced into the geosphere by nuclear weapons testing after 1945 are one such signal. Other geologically detectable signals are: microplastic particles, now virtually everywhere in our waterways, the fossils of which will catch the eye of future geologists, and increases in the nitrogen and phosphorous levels due to fertilizer use that may cause the largest change in the planetary nitrogen cycle in the last 2.5 billion years. Finally, the most consequential marker of all is global climate change—in about two centuries, burning fossil-fuels have increased CO₂ levels from 280 parts per million (ppm) to 400 ppm today—harbinger of the Anthropocene and a drastic human-induced alteration in planetary conditions characteristic of the Holocene epoch.

Whether geologists will update their periodization chart remains to be seen. For the rest of us, however, we must take stock and come to grips with the fact that the results of human activity have substantially, and perhaps permanently, transformed the biosphere for those living in at least the next few centuries, whatever geologists eventually find in the fossil record thousands or millions of years from now. Hell-bent for leather, human activities are shaping both physical and biological systems and processes on a planetary scale, with many destabilizing and deleterious consequences.

The retreat of glaciers and the moderation of temperatures that characterized the time of the Holocene have been a great boon to humankind. It is no exaggeration to say that we owe the development of our species-being to Holocene climate and flora. Whether or not we first lost our innocence then, or earlier, it was in the Holocene that we gave up our wildness—that self-domestication became natural to us, as John Livingston suggestively puts it.  

Soon enough we began transforming our environment into cities and farms. “The world as we know it is a relatively new phenomenon,”
Rockström notes, “It has only been during the past 10,000 years...that factors necessary for human societies to develop have been reliably present. Before that, Earth was often a horror show.”

The Holocene is, quite literally, the natural foundation for the cultural archetype of the Garden of Eden. Now, in our very lifetimes, we are wantonly abandoning that boon and embracing a curse. Even if the geologists reject the Anthropocene designation and say that the Holocene continues, humanity is about to be expelled from it anyway. We will lose its blessing and gift if we continue to treat Earth as a limitless stock and sink, and if we ignore the crucial insights offered by Earth System science. These insights involve the concept of resilience and the interconnected and self-adjusting nature of planetary systems.

Resilience involves more than just returning to normal after a period of stress. In the ecological and Earth System sciences, resilience refers to the capability of a system to maintain itself in a relatively stable state through various stabilizing regulatory mechanisms that off-set change-forcing influences. However, as resilience declines, systems also have the capability to transform themselves into a new stable state as various mechanisms are triggered that reinforce change-forcing influences. These mechanisms often cannot be reversed once activated. Resilience applies to ecosystems at various scales, from a local pond or a particular forest to the planet as a whole. At the planetary level, the resiliencies of all systems are interconnected so that loss of resilience and destabilization of one, such as the climate system, affects others such as biospheric integrity.

Even if some of the beneficial conditions of the Holocene can be carried over into the Anthropocene, for human life and conduct the Anthropocene means radical change—fundamental alteration at the roots of our thinking. It means that we can no longer assume a Holocene normal—that we have taken for granted so unthinkingly, and tended so carelessly—we will have to work hard to earn it. The inevitability of serious planetary alterations doesn’t seem to be in question any longer. Only the nature and impacts of change are still in play: change for good or ill, change with consequences that are equitably borne or unjustly parceled out. Jeremy Schmidt, Peter Brown, and Christopher Orr capture the essence of the predicament well: “The Anthropocene is a storm in which ethics and science are entangled: ethical systems moderate behaviors that shape the Earth System, while new categories often informed by science...shape ethical calls for planetary stewardship.”

In the coming years of the Anthropocene, human conduct will have to change on a very large scale in order to avoid undermining Earth’s capability, as a planet, to sustain flourishing and resilient life. The focal point of change will have to be the activities of extraction, fabrication, and excretion within national and global political economies. The time for imagining humans acting out their personal, social, and political dramas in the foreground against a background of more or less automatic or technologically tweaked changes in the non-human world—like the images projected on a greenscreen behind actors in the making of a special effects movie—is over. Foreground and background have merged.
THINK HERE

Thinking as we have been taught to think and to interpret the world, by most of our academic disciplines in the past will mislead us because these disciplines assume Holocene continuity and because if they notice planet scale changes at all they assume that such alterations take place so slowly, relative to the human time scale, that they can be safely ignored. We shall have to learn new things, in new ways, but we also must unlearn some older things. If the Anthropocene began around 1950, then these disciplines have guided much of the economic and political activity that has so rapidly gotten the planet into deep trouble. The guidance these disciplines provide is clearly out of touch with bio-physical realities and limits on a living earth. They are blind to workings of complex natural systems over decades because they cannot integrate the knowledge we have of such systems—via modeling and constructing probabilistic information—into the more short-term metrics that drive policy and incentivize investment. And it is these disciplines, advising those in positions of power, that have invented the inadequate metrics in the first place.

In sum, how can conduct that promotes Holocene resilience be prompted? How can a right relationship between culture and nature—human projects and earth systems—be established? This is a large topic, and I propose to explore only one facet of it. Can a moral philosophy and ethical life attuned to integrated planetary systems, and not simply to particular ecosystems, emerge? Can such an ethics play a meaningful role in bringing about the needed changes in human conduct as the Anthropocene unfolds? For short, let me call this new perspective an “earth ethics.”

Is a new kind of ethics necessary in the Anthropocene, and what would actually be new about earth ethics? After all, the conceptual construction of moral and religious philosophies and the practical construction of ethical ways of living have been going on for at least the latter half of the Holocene—that is, the last few thousand years. Therefore, there are a very large number of ethical systems on offer. Generally speaking, ethics is the study of right and wrong; good and bad; positive, valuable states of the world and negative, harmful ones. The most predominant forms of ethics today are based on consequences, duties, or virtues, but they each come in many different versions. Surely we can find the ideas we need among this rich tradition of discourse to make our way forward in the Anthropocene.

Perhaps. Yet several serious observers are not sanguine. Clive Hamilton, Christophe Bonneuil, and François Gemenne put the point starkly: “It is not enough to describe as ‘unethical’ human actions that are causing the sixth mass extinction of species...Talk of ethics renders banal a transition that belongs to deep time, one that is literally Earth-shattering. In deep time, there are no ethics.”

This sounds nihilistic, but I don’t think the authors mean to announce the end of ethics in the sense that the Anthropocene transition will be a time beyond good and evil in which right and wrong will have no meaning in relation to human conduct. The question being raised has to do with the adequacy of the concepts, outlooks, and evaluative practices inherited and transmitted from our cultural past in historical time. Hamilton, as I note below, perceives a radical
rapture in the reality of nature that must be answered by an equally radical discontinuity in culture, a new form of whole system thinking on a planetary scale. In contrast, Schmidt, Brown, and Orr respond that despite a paradigm shift in scientific and normative understanding, “there are several reasons not to reject conventional ethics altogether, or to dismiss all forms of ‘cultural learning or transmission’ based on fiat declarations about the implications of new geological time periods.”

Nonetheless, the concern about the adequacy of traditional concepts and categories in ethics is well taken. In ethics and moral philosophy, thinking as we have been taught to think about the world will produce anomalies, blind spots, and practical mistakes in the future. The history of moral philosophy demonstrates this; but so does the history of science.

Whatever else it is, a new ethics for the Anthropocene must be a “critical” ethics. By this I mean that human beings often act—and perceive themselves to be acting—deliberately and on the basis of what they perceive to be good reasons and sound values. It will be the task of ethics in the Anthropocene to scrutinize rigorously and critically what “good reasons” and “sound values” involve. This critical perspective is essential because understandings of reason and value vary, and people make errors and can be self-deceptive about what they are doing and why.

Of course, virtually all types of moral philosophy aspire to do this, although many have failed in practice. What I envision as a new earth ethics, however, has one important difference—it resides within a new scientific and intellectual context or horizon. Earth ethics can be thought of as studying good reasons and sound values from the perspective of earth system functioning. The importance of this is well articulated by Hamilton in his recent book, Defiant Earth:

Grasping the scale of what is happening requires...making the cognitive leap to Earth System thinking. It is one thing to accept that human influence has spread across the landscape, the oceans, and the atmosphere, but quite another to make the jump to understanding that human activities are disrupting the functioning of the Earth as a complex, dynamic, ever-evolving totality comprised of myriad interlocking processes...If human activity occurring over a century or two can irreversibly transform the global climate for tens of thousands of years, we are prompted to rethink history and social analysis as a purely intra-human affair.

Clearly, the cognitive leap to which Hamilton refers would erase the illusion of the sui generis character of the human cultural and social world: culture as foreground to nature’s background, and ethics as “purely intra-human.” Thinking in terms of earth systems also shatters human chauvinism, which holds that only human beings can have intrinsic moral value or worth. But critiques of these views are legion. Environmental and ecological ethics have already gone a long way toward displacing them among those who think carefully. Still, nature has been brought from background to foreground and given ethical consideration primarily on
ecosystem, landscape, or watershed scales. One of the strengths of ecology as a discipline is that it is a science of the particular. So ecological ethics has not, as yet, put nonhuman nature together as a complex, dynamic and interactive whole. The moral significance of the being and becoming of Earth as a complex of co-creative systems has yet to be appreciated. Earlier articulations of this kind can be found in the history of ideas—Alexander von Humboldt comes to mind—but ethics has new conceptual work to do in order to embrace an Earth System framework.

A reconceptualization of the context of moral thought and ethical life also carries with it a reconceptualization of ethical ideas and categories themselves. Aristotle rethought virtue by contextualizing it in a polity whose constitution ensured a political “mean” between extremes, an equilibrium of class power. Kant rethought duty by taking it out of the phenomenal world where it had utility only and placing it in a world of autonomous reason where it had value for its own sake. Hegel rethought freedom by taking it out of a timeless space of non-domination and returning it to a temporal unfolding in which the human condition could become fully self-aware through a dialectic of conflict and struggle. In the work of these thinkers and others, it is not so much that totally new ethical concepts are needed as it is that received concepts need to be understood in new ways.

Even so, it is pertinent to consider the shape that ethical discourse and argumentation might take if rethought on much larger physical and temporal scales, with a much greater appreciation of systemic boundaries, limits, complexity, and symbiosis. Consider care and solidarity, for instance. How would we have to reconceptualize them—and restructure their cultural practices communicatively and institutionally—if we saw nonhuman beings as agentic rather than as ontologically passive and reactive? Or if we saw geo-physical materiality as living rather than inert?

Moral theories and ethical formations in cultures that assert the unique value of human persons often assume that they are saying this in some kind of abstract logical vacuum or from some moral point of view from nowhere. But they are not. These ethical systems are founded on the Holocene, an entire earth system operative for thousands of years, which has made it possible for human beings to devise ethical discourse (with many different contents) and integrate it into their social lives and organizational practices. An ethics of justice and obligations grounded on individual human rights is possible only because the climatic and other aspects of the Holocene were the preconditions for the very possibility of conceiving, valuing, and protecting individual rights in the first place. As Schmidt and colleagues put it: “In the Anthropocene...the state of the Earth System does not provide for the kind of functional stability assumed by, but largely unacknowledged within, conventional ethics...The human-induced flux on the Earth System characteristic of the Anthropocene challenges how, or if, conventional ethics may be reliably anchored.”

An earth ethics for the Anthropocene, then, does not need to abandon the concepts of individual human rights and social justice; it simply needs to repudiate the past uses of those concepts to justify activities that are destructive of the
resilience of Earth’s systems. It needs to base the ethical obligations operative within human culture and society—especially within the political economy—on the ethical obligations to the earth as a complex totality and system of life.

And not just to any state of that system. It was the Holocene that brought ethical thinking into the world. The Holocene—that mere infant of an epoch by past standards—should last much, much longer. It will not last forever because another Ice Age will come, even if we don’t somehow induce one prematurely. Forever is a long time; couldn’t we buy another ten thousand years at least? In any case, an earth ethics surely calls upon us to perpetuate the favorable life conditions of the Holocene for longer into the future.

If only Earth will give us the time to edit our ethics. If only we don’t squander that precious time vaingloriously attempting to edit Earth via geo-engineering—purportedly with the benevolent intention of an engineer rather than with the obtuseness of a bull in a china shop. The longer we delay editing ethics (and altering conduct thought to be morally justified), the more tempting editing Earth will be. Can an earth ethics alter conduct? The answer had better be yes.

All systems of ethics are a cultural complex of reasons, value commitments, interests, ideals, and motivations. Such a complex is found in virtually all functioning and stable societies, although the substantive content of reasons, ideals, and motivations varies widely among such societies, past and present. Whether any substantive ethical universals—reasons, rules, ideals common to all societies—exist remains a point of disagreement. But it is widely agreed that there is no known society that is entirely devoid of an ethical complex of ideals and rules, and that there is no human group entirely incapable of ethical thought.18

An earth ethics will likewise be a cultural complex of reason and motivation that shapes and directs the conduct of individuals and groups. These shaping reasons and motivations, in turn, are cultivated by the creative development, meaning, and communication of concepts. Ethical concepts provide a lens through which to understand the world and our place in it. Ethical concepts also provide motivation and will to act upon that understanding. Politically, appeal to ethics can rationalize and legitimate existing practices, or it can serve as a basis for critique of the status quo and as a motivating aspiration for radical social change, depending upon its substantive content. Without value-infused vision and will, no matter how advanced our science and technology becomes, we are unlikely to rise to the occasion of this critical juncture—it has boiled down to decades, not centuries—in Earth history and this crisis moment for humankind.

How does ethical discourse bring about the value-infused vision and will that are needed? The discourse of earth ethics should be developed so that consensus can be built around it founded on notions of logical, cogent reasoning, evaluation, and appraisal, and on non-anthropocentric versions of basic principles such as justice, equality, and rights. The mindset to which Rockström refers must also include a reconnection among people themselves. An earth ethics can help to achieve a society in which most people, most of the time, act to fulfill consciously held good
reasons—reasons that have rational normative justification supporting them. We must learn more about the circumstances under which moral education and the cognitive and emotional skills necessary for motivation and action guided by the achievement of ethical ideals—such as social justice, respect for the rights and dignity of others, and stewardship of the natural environment and planetary systems—can be gained. How does a society morally learn?

An earth ethics in the Anthropocene will set a relatively new agenda for happiness, justice, goodness, and duty. It will focus on the political realization of Anthropocene-functional and Holocene conserving rules, values, and ways of life. In doing so, it will need to support ecological citizenship by providing better systems of participation, deliberation, and consensus-building, remembering the key role of motivating reasons, deliberate, principled action, and reflective, evaluative judgment.

Some have announced the arrival of a “post-truth” society, in which individuals and groups are no longer motivated by information about objective facts, but by appeals to their emotions and pre-existing beliefs. Such cultural and psycho-social formations cannot be tolerated in the Anthropocene for very long. An earth ethics discourse must offer a viable alternative—a reconnect with truth, a restoration of social trust.

This issue of *Minding Nature* has two special features. First we visit the topic of our moral and civic responsibilities to water. It is hard to think of a more fundamental issue for an earth ethics, and Brock Dolman and Betsy Damon share a wealth of expertise and experience to guide us. Damon contributes both a thoughtful essay on the being of water and a practically oriented toolkit designed for community education and action in local settings. Such resources are essential to civic learning and civic practice.

The second special feature in this issue is a wonderful sampling of a number of chapters that will appear in a new book co-edited by Gavin Van Horn and John Hausdoerffer, *Wildness: Relations of People and Place*, forthcoming from the University of Chicago Press. From this rich multi-authored volume, we have exercised the prerogative of colleagueship and selected chapters from Center for Humans and Nature President, Brooke Hecht, Senior Fellow, Curt Meine, and Gavin himself. They get us wild in Wisconsin, Iceland, and points like Chicago in-between.

We also have two lively interview-dialogues in this issue. In one, we get a glimpse behind the scenes into some thinking that informed *Wildness* with a conversation between Van Horn and Hausdoerffer. In a second interview, Jim Ballowe presents his fascinating conversation with Arthur Melville Pearson. Currently the Director of the Chicago Region Program for the Gaylord and Dorothy Donnelley Foundation, Pearson is a prominent author of several works including *Force of Nature*, a biography of George Fell, who was the driving force behind the founding of The Nature Conservancy and the Natural Areas Movement.

In our Reviews & Reflections there are two additional engaging essays. Jim Kroschell packs up his Thoreau and a mind full of fascinating thoughts and takes us on a journey into the forest world
of Maine. Karen Jacobs provides another exploration, this time into intellectual history, tracing the theory and practice of “geomancy”—divination or discovery by means of signs derived from the earth. This is a tradition in which the proper relationship between humans and nature is not given, but must be earned and put into practice, and it is dynamic and unpredictable. There are many ways the signs the earth gives us can be understood, even as the earth becomes The Earth System. How we listen can be just as important as what we hear.

In The Last Word, Kevin Clark and Anja Claus revisit the efforts that have been made, by the Center and others, in assessing the prospects of democracy in the world’s response to the climate crisis.

Our featured artist for this issue is Diana Sudyka, an illustrator and printmaker from Chicago, who creates work for book and album covers, screenprinted gigposters, and original watercolors. More of her work can be seen at http://www.dianasudyka.com.

*Minding Nature* notes with sadness and fond memory the death of two of our colleagues and collaborators.

Earlier this year, we lost Benjamin R. Barber, a leading political theorist whose important essay “Democracy or Sustainability: The City as Mediator,” came out in *Minding Nature*, Vol. 7, No. 1 (January 2014).

In August our wise friend, George Rabb, leading scientist and Center Board Member, passed away. See below for a brief reminiscence of Dr. Rabb.

Bruce Jennings is Senior Fellow at the Center for Humans and Nature and Editor in Chief of *Minding Nature*. His most recent book is *Ecological Governance: Toward a New Social Contract with the Earth* (2016).
18. There are many different ways to characterize ethics and morality as an object of study. In my attempt to characterize an earth ethics in this essay, I have benefited from the analysis in W. Keane, Ethical Life: Its Natural and Social Histories (Princeton, NJ: Princeton University Press, 2016) and P. Kitcher, The Ethical Project (Cambridge, MA: Harvard University Press, 2011).
19. For a detailed discussion of these questions see T.M. Scanlon, Being Realistic about Reasons (New York: Oxford University Press, 2014).
On July 27 we lost our dear George Rabb—a board member for the Center, a conservation leader known for his extraordinary work worldwide, a beloved Chicago elder and mentor.

Much of the Center’s staff was able to be with George right before he went into the hospital for heart surgery on July 7. At that point, George was in a wheelchair and his hands were shaky. We gathered with George outside. As we got ourselves settled on the patio, George pulled a folder from his wheelchair. “I’ve got reading material for you!,” he said.

I know this will give many of you a laugh, as George was always hand out the papers and books his colleagues needed to carry work forward. He had an unbelievable handle on literature spanning many disciplines. And this was no small task. This time, his reading suggestions included a book called *Behave: The Biology of Humans at Our Best and Our Worst*. He handed us a review, written by Frans de Waal, which promised: “Rarely does an almost 800-page book keep my attention from start to finish...” We will get the book, dear George, and we will read it.
In these weeks since the surgery, George fought as long as he could, often giving us “thumbs up” and, though confined to his bed, paddling his feet back and forth—a steady sign of his effort to keep his blood flowing and his body moving in recovery. But, at some point, at 87 and post-surgery, George’s body could no longer keep up with his mind. To those who knew him, this likely comes as no surprise.

I was at his bedside with George when he passed. He died about as peacefully as I can imagine anyone dying. It was an honor to be with him during these last weeks and days—and, especially, these last moments.

He leaves behind multitudes inspired by his dedication to conservation as caring, the importance of global citizenship and, yes, the dream of a world environment organization that cares for the whole community of life.

Gavin Van Horn, the Center’s Director of Cultures of Conservation, leaves us with the poem below to honor George.

**For George**

His feet shuffle—wanting other roads
likely Carolina country lanes
thick with humidity, adventure, dust, cricket clicks

Curling toes between yellow prickly grass,
leftover warmth through the soles,
sinking heels into oyster-rich mudflats,
calves covered in taupe, sunbaked into delta jigsaws

His feet shuffle—in and out of a dreamscape, short on breath—
unregulated, they paddle him away
from the tubes, tests, undefended indignities

Flutter him to known shores—and unknown
into a breeze salted in dusk, chitter and fuss of sandpipers,
ricochet of expectation and need—there, he may see

Mary at last—
his feet, sprinkled in pelican-white sand,
stop running
they need not carry anything beyond this shore
Welcome to Planet Water: Time for a Reverential Rehydration Revolution

By BROCK DOLMAN

Here on our so-called Goldilocks planet, amid the vastness of our Milky Way galaxy and beyond, the provenance of the adage “location, location, location” has never been more apropos. As we orbit our gigantic starry nuclear power plant, fusing hydrogen atoms into helium, showering massive amounts of energy with the dizzying speed of light, our heliocentric planet is perfectly placed at 93 million miles away; thankfully, we are neither in the Venus nor Mars location.

Life in the known universe is endemic to Planet Earth—or Planet Water, as the late Lynn Margulis aptly named it. The reality is that carbon-based life is mostly water.

And while we may call ourselves Earthlings—more uniquely we are Waterlings!

As a biologist, I am one who, by definition, studies life. One who loves life—an unabashed bio-philic! And clearly all life-lovers must fundamentally be water-lovers. I have come to guide my life and work on the foundational clarity of: No Water, No Life. Or, as astutely stated by Jacques Cousteau: lest “we forget that the water cycle and the life cycle are one.”

Water—the word, the molecule—is so seemingly simple due in large part to its ubiquity here. Water provides a perfect foil for the definition of underestimation as an understatement. While some have valiantly tried to estimate the myriad values of water, its availability, and its purity for all of life, truly understanding water is inestimable. The essence of water epitomizes the scientific idea of an emergent property. In this case, it may be said that the whole of water is greater than the sum of its parts, with the parts being, quite simply, two hydrogen atoms and one oxygen atom held together by a “weak hydrogen” bond—a molecule that chemically could be described by the ominous sounding name of Dihydrogen Oxide.

A primary character trait of this amazing three-atom molecule is that when hydrogen atoms and oxygen atoms solely fraternize with their own kind, they form gases which are notoriously explosive. Yet when they combine as H₂O, a wholly novel set of substances are created that can be found widely distributed on our planet in any one of the three most easily viewed phase states—liquid, vapor, or solid. Of additional importance is the fact that the two hydrogen ears of one H₂O molecule carry a slight positive charge that enables them to nicely nestle into the negatively charged oxygen face of our miraculous, Mickey Mouse molecule, creating a “fluid bond” that allows for continuous morphing of form and state, depending on external factors such as temperature, pressure, and motion.

How is it that solid water floats on its liquid self? How amazing is the process that allows just enough of the sun’s energy to catalyze seawater to shake off its chemically bound up salts and rise up invisibly as
a distilled, purified vapor that wisps en masse, only to eventually condense as a form of precipitation: liquid rain, crystalline snow, or fog drip? With new sensing and satellite technology, science is now able to determine and to document that at certain times of year along the west coast of the continental United States, in the eastern Pacific, the phenomenon now called “atmospheric rivers” occurs. When this happens, it has been calculated that concentrated flows of water vapor and liquid “flying rivers” can make landfall. According to the National Oceanic and Atmospheric Administration, they can discharge an amount of water vapor equivalent to 7.5 to 15 times the average liquid discharge at the mouth of the Mississippi River. The myriad list of multifaceted facts about water’s unique life-supporting characteristics is legion. For those of us who wonder, “What would water want?” and are willing to work for water, life is never dull.

Now back to this fusion-powered star of ours. Many forms of electromagnetic energy are spiraling down in waves, showering the earth with massive amounts of energy. One example is infrared light, which has an eight-minute, twenty-second transit time from the sun to the surface of Planet Water. Considering that 70 percent of the surfaces these energy waves strike are water—specifically ocean water—our home is truly a pelagic planet. We are bathed in the saline solution of the salty reservoir of left-behind distillates. Fresh water is continuously being created by the boost of streaming solar-thermal power that allows it to leave the salty solvent behind for a fresh journey up, up, and away—a journey that may take it over land to be combed out as coastal fog and embodied as a giant redwood tree for the next two thousand years!

The idea that we live on Planet Water, where life is endemic, is worth a bit more pondering and unpacking. The operative scientific notion is that roughly 3.8 billion years ago a nascent reaction occurred and what we now call organic life seized the day and emerged in the primordial seas. For the first billion years or more, life was anaerobic, making a living on the available earthly chemistry, exuding sulfur-relat-
ed molecules in an otherwise oxygen-free atmosphere. Over the next one billion years, all that solar energy and light streaming down upon the liquidity of the planet was an opportunity too great for evolution to ignore. Around 2.7 billion years ago, life forms known as cyanobacteria found their first successes with photosynthesis, converting photons of sunlight into sugar and scaling up what was truly a watershed moment for evolutionary diversification of life. Then carbon-based life enmeshed in an aqueous solution commenced a new level of metabolic activity to feed itself off light energy from our central star.

With each input, there is an output, and in this case the novel notion was gaseous oxygen. Over a period of roughly 400 million years, due to the advent of photosynthesis, excess oxygen likely became a detriment to all anaerobic life, which had evolved in a mostly oxygen-free atmosphere. The ingenuity of revolutionary life processes allowed this excessively oxidizing world, caused by a runaway train of oxygenated cyanobacteria flatulence continuously accumulating in the atmosphere, to literally rust over the planet. Geologic evidence indicates that during this period, banded iron formations were created all over the planet as iron that had been in seawater solution precipitated out into sedimentary layers of magnetite. These rich deposits have been the source of over 90 percent of the iron ore humanity has mined. It is amazing to imagine that we owe the Iron Age and the bulk of the iron in your car to oxygen-producing cyanobacteria from over 2 billion years ago. And yet, in what has become one of the great hallmarks of the supreme adaptability of life, the observation that “waste equals food” springs forth, as some early bacterial life-forms figure out that there is a selective advantage to utilizing this free “toxic” oxygen to fuel metabolic processes. Thus, one of the next most profound mega-moments in this grand experiment known as life on this planet commenced. Solar-powered photosynthesis produced excess oxygen, which was then consumed by life forms that as a result output a gas composed of two oxygen atoms adhered to a carbon atom, making this miraculous molecule called carbon dioxide, or CO₂.

On Planet Water it can be said that there is no away, since earth is functionally a closed system in terms of matter. In grand terms of symbiosis, we get a reciprocal relationship between the cycling of outputs and inputs—specifically, between cyanobacteria, archaea, and what become plants in trade with what become both fungi and animals such as ourselves. At this point, it might be worth stopping to take a breath of gratitude for the grand O₂ and CO₂ Trade Agreement, whose permutations and oscillations of equilibrium have dynamically danced about for the past several billion years, thanks to the gaseous warmth trapping the biologically based Greenhouse Effect. And we may wish to re-evaluate the idea of away relative to the fact that the combustion by-products of our fossil fuel addiction are not going away, and instead are steadily accumulating and retaining heat in our atmosphere and oceans—what might be considered a global fossil-fool-fever.

Over the past 3.8 billion years, the emergence and subsequent evolution of life has generally created conditions conducive for more life. This idea—that the presence of life begets life—is encapsulated in the Gaia Hypothesis put forward by James Lovelock and Lynn Margulis in the early 1980s. And again, to reiterate: you and I live on this wondrously unique planet—the only one, to the best of our knowledge, that hosts organic life.

Through myriad trials and tribulations, with multiple near misses of full extinguishment, the unbroken presence and process of life on Planet Water for the past 3.8 billion years ought to warrant consideration for being a mega-miracle. All life that currently exists is the direct progeny of the earliest proto-life-forms that have carried forward to the present—this unbroken lineage of life our greatest gift from Gaia. Immortality of life as a force of continuum over 3.8 billion years is the longest running and most successful expression of an attempt at thwarting the Second Law of Thermodynamics—where the orderliness of Gaia, due to the presence and processes of life, has crafted more
order than disorder in our otherwise expanding dark and cold universe.

In some respects, then, the presence of life writ large as an unbroken continuum of populations, whose replication was favored through naturally selecting modified descendants, at least temporally appears to contraindicate the idea of entropy and chaos. At least, on this one special planet, and for the time being? Plu-ripotent populations over the entirety of time imme- morial have been giving entropy a run for its money. While individuals will live and die accordingly, we face the emergent opportunity to recognize the whole of life as greater than the sum of the individuals as parts.

Upon our passing, how our carbonaceous carcasses feed back into creating conditions conducive for life is key to the sense that sustainability is about our ability to sustain the cycles of life. In a number of our societ- ies we confer rights (private property, water, civil, etc.) to individuals—which is critical for justice. Yet when the pursuit of personal rights abdicates responsibility to the whole of the community of life, we run into problems. Fixation solely on birth rights in the ab- sence of equal focus on birth responsibilities runs into problems when the rights of individuals as parts are preferred over the responsible whole of community. How shall we reclaim our focus toward an understand- ing of life as an emergent property rather than the om- inous collective feeling of dying as an emergency prop- erty?

At the edges of dynamic equilibrium, where rights and responsibilities meet, is the nexus where rever- ence and resilience result over time. There are no guarantees, and entropy is perennially and patiently omnipresent. Thus, our lived experience of endemic life on Planet Water is the most astounding and truly awe-inspiring chaordic gift of Gaia one could hope for. All of which would seem to demand our deepest rever- ence for life, human and non-human forms alike.
If we embrace this idea, then how can humanity consciously and strategically ensure that our collective behaviors, with our needed inputs and associated outputs, be done in ways that optimize the conditions which best support life on this planet? Currently, we operate from the anthropocentric paradigm, the hallmark of which is the fact that our single species is unequivocally the driver of a great extinction vortex, the magnitude of which, by some accounts, is currently of a scale to be called the Sixth Great Extinction. When human settlement patterns of population and consumption are such that they begin to express die-offs to the net diminishment of life, we can see the pattern of this behavior as expressly anti-biotic—literally against life. Anti-life is fundamentally what extinction implies—permanent death. Certain species of life that have evolved over eons into the form and function they represent today are being forever removed from the family of living life now. To some of us, this collective expression of our anthropocentric fetish appears to be the epitome of shortsighted hubris. Astute predictions are that this ignorance will not be bliss for the future of humanity and life overall. Nonetheless—Welcome to the Anthropocene.

At some level a fundamental conundrum facing humanity today is the question of the sustainability of our various settlement patterns on the planet. While the anthropocentric perspective tends to take up the bulk of the “airtime” in our collective consciousness and conversations, the fundamental non-alternative fact is that non-living laws of physics and chemistry continue to be the raw resources for a reciprocal revolution upon which life depends. It is our choice to compose with rather than to impose upon the fundamental life-supporting elements and keystone processes of living systems, awakening to the reality that human life is entirely dependent on the health of all life. Considering again that all of life is mostly water, we are called to add in two additional R words to our reciprocal revolution—rehydration and reverential. Rehydration may be the easiest of them to grok—again, simply put, No Water No Life. Reverential is a much thornier prospect for many.

Mathematician and meteorologist Edward Lorenz once put it: “Climate is what you expect; weather is what you get.” Now, as we face the flummoxing reality of climate change, that aphorism is disturbingly up for grabs. The smart money would be best spent on patterning our watersheds to produce more rehydrative and resilient returns on investment. For instance, many are newly cognizant of the drought-to-deluge pendulum, which is more wildly swinging all over the planet, notably affecting California’s Mediterranean climate over the past five years or so. It is incumbent on our societies to aggressively pursue changing how we perceive and enact life-literate land-use patterns—from forestry, rangeland, and agriculture to urban, suburban, and rural development designs. All must be reflectively re-thought and retrofitted from the current dehydration and degradation design toward a new rehydration and regeneration design. We must move from the “drain-age” to the “retain-age.” All the tools in the toolbox are known for how to retrofit for retentive resilience at each land use at scale. While sadly it is not the norm, we do have the practical knowledge and case studies to enable us to practice eco-forestry and regenerative agriculture, and we know how to design green cities that are just for our ever-growing and urbanizing human community.

What is lacking is the social will and collective incentive, due in large part to the smothering dominance of an economic model called capitalism that at its foundation is ecologically illiterate. Extinction, genocide, and climate chaos are but a few of its more charismatic externalities. The powers that be are loath to change a system that has been working to consolidate their wealth and power, while the urgent demand for rapid change has never been felt more greatly by the masses of all life.

With this sinking feeling, some may be inclined to look for a lifeboat to float their familial future upon. For me, when I look at landscapes, the shape of the lifeboat I am looking for looks exactly like a watershed—that area of land where all precipitation that falls within it eventually drains out to a single exit point. From ridgeline to river to reef, those that choose to retrofit their living lifeboat watershed from stem to stern may fare better than those that don’t. The beauty of a no-regrets policy would suggest that strategic time and energy best be invested in regenerative, community-based food, water, waste, energy, housing, and transportation systems independent of the pressing climate chaos crisis. Success looks like a thrivalist movement more than a survivalist movement. We need an all-hands-on-deck call to action to transform each of our watersheds into living lifeboats. And Dr. Luna Leopold’s prescient insight is as timely as ever: “The health of our waters is the principle measure of how we live on the land.”

It is oft said that planning is best done in ad-
vance. The time is now for how best to plan for battening down the hatches on each watershed lifeboat. We have a supreme opportunity for society to come together with comprehensive purpose and ample job security for a cleaner, healthier, more family-friendly future. Our communities must be rigorously resilient to weather the coming storms of uncertainty. All bets are off—but my 3.8 billion-year-old investment advisors suggest that looking into What Would Water Want by optimizing its quality and quantity might be wise. Where water flows, the well-spring of life grows. Are you willing to work for water? Willing to think and act like a watershed? Those that do will more likely have grandkids grateful for their grandparents than those that don’t. As bi-pedal sacks of saline solution, the choice is ours—may we choose the way of life. May we choose the way of water.

Mostly Water, Brock.

Photo Credits: Brock Dolman, used with permission.

Brock Dolman co-directs the WATER Institute, Permaculture Design Program, and Wildlands Program at the Occidental Arts and Ecology Center in Sonoma, CA. He has taught Permaculture and consulted on regenerative project design and implementation internationally in several countries. He serves as an appointed commissioner on the Sonoma County Fish & Wildlife Commission.
The People’s Water

By BETSY DAMON

Listen to the rain
Watch the movement of a stream
Hear the babble of a brook
Tune your heart to the rhythm of ocean waves
— Betsy Damon

My upcoming book The People’s Water begins with “A Journey with Water,” which tells the troubles and triumphs of galvanizing communities and restoring water systems through my experience as an artist and activist. The second part of the book is the “Toolkit,” which invites readers to embark on their own journey with water. It covers effective organizing, team building, and citizen empowerment, enhancing understanding with fun and easy-to-read graphics, diagrams, and cartoons. It explores nuts and bolts topics—learning about a community’s waters, mapping our water systems, calculating the water bank of a community, and implementing micro- and macro-level solutions to water problems. (See the accompanying article, “A Water Toolkit.”)

WATER: AN INTRODUCTION

Join me on a journey with water. Water is the miraculous molecules that shape and sustain all life on earth. Water is also the connective tissue of all living systems. Like blood vessels in the human body, it forms the veins of the earth. Tune your brain (which is 78 percent water) into these molecules that work tirelessly, constantly connecting and reconnecting, creating an endless pulse. This pulse exists in every living form. Remarkably, this pulse, enabled by the hydrogen atom’s immediate impulse to connect, initiates the endless and fascinating circular motions of water. This pulse enables water to be self regenerating. Water does not naturally degrade; its degradation is a side effect of concerted human efforts.

Water has taught me critical lessons about my place as a human being sharing this planet. These are lessons about inherent connections, collaborations, and relationships. It has invited me into a deepening respect for the fundamental needs, pace, and space of being alive and regenerating. These needs are my
needs, your needs, the needs of our families and communities, and the earth’s needs.

Humans have always interacted with water, sometimes with respect and skill, and sometimes with indifference and disregard. Science and technology have been celebrated as vehicles of liberation and progress, and also rebuked as instruments of oppression. Urban living increasingly benefits from the ability to deliver water and remove waste to treatment plants. New innovations integrating engineering, chemistry and biology allow communities to reuse wastewater, recycle waste and evolve renewable energies. On the other hand, the extensive conversion of streams, rivers, and runoff into a system of concrete ditches and pipes has weakened our water’s intrinsic resilience, disabled its flexibility and led to disconnection, control and commodification. This is called single purpose design. It is a response to one threat or need, and the potential harm caused is proportionate to its scale. Single purpose designs do not react effectively to sudden change such as geological shifts, urbanization or climate change.

While initially these water projects may have been relatively benign, as the population expanded and cities grew beyond their water capacities, ever more heroic efforts to deliver and remove water have left us with inflexible systems that disregard the needs of the wider environment.

In the world today, over fifty thousand towering dams choke more than half the world’s rivers, not to mention hundreds of thousands of smaller dams. Dams have their uses, but they are inflexible structures with a limited lifespan—and too many have taken over the complex systems that sustain this earth. These structures intended to solve energy and agricultural challenges have created many unforeseen difficulties.

We have straitjacketed rivers, drained lakes, used up aquifers, and turned wetlands into dust bowls. We continue to dislocate vast amounts of water to maintain an illusion of progress. It is our habit to use water as a sewer.

Most people living and educated in capitalist systems experience water as something bought, owned, and sold back to citizens. 663 million people—one in ten—lack access to safe water. Is there enough water for all? Is worldwide water scarcity truly due to global population growth? Or has private industry created “scarcity” by polluting water supplies and then

Water does not adapt to life: life adapts to water.
charging people to buy back potable water? Water is the new gold. Its speculation fuels mass privatization. Commodification of water is possibly a more serious threat to life on earth than extraction of fossil fuels. By treating water as a commodity we evade the obligation to understand water’s role in creating and sustaining all life. Meanwhile the public is more knowledgeable about robots and space travel than about where their water comes from and how it is used.

We cannot take care of what we have forgotten, what no longer exists in our minds. We cannot take care of rivers if every stream is buried in a pipe or polluted, if we have never seen a river running. We cannot take care of the foundation of life if we have forgotten where it is found.

We can put on the brakes if communities large and small work together to restore resilience, complexity, and flexibility to water systems, placing water as the foundation of planning and design. By getting involved in daylighting a stream, restoring a river, updating or dismantling a dam, we can witness how rapidly life returns: fish spawn where they may have not for decades; plants that have not been seen in centuries suddenly pop up. Advocating for the return of drinking water fountains on campuses and city streets will reintroduce a public supply of water.

Water’s own capacity to regenerate is always giving us hope and leading the way. It is essential to follow water and to understand that design and engineering must recognize that water is more complex than three stages in the hydraulic cycle. Water is not linear in nature, nor is it inanimate or nonliving. Water contains memory and is complexity in action. A living thing, water has more facets than the rarest jewel. Why does everyone want a water view? Why does every religion have water ceremonies? Why does lying beside a babbling brook soothe us? Why can improving drinking quality water heal us? Water goes beyond physics and chemistry: it is also medium, message, and memory.

One must take into account the many virtues of water when designing and planning. Single-purpose design serves neither the ecosystem nor water itself. Separating bodies of water to manage them better is usually a mistake. Water is a fundamental model of cooperation, flexibility and complexity which offers real wisdom to the human community.

On my journey, water has been both the teacher and the subject. Water led me to understand profoundly that connectivity is essential within every biological system. It is essential to remember that all solutions and policies must serve everyone, all life and living systems. Our best model is the nature of water itself. Just as water is strongest when it is diverse and complex, our communities are most innovative and powerful when everyone is included. Diversity implies variety in many ways including economic class, race, religion, skills and knowledge. All these processes depend on empowering individuals and their communities to have a voice and take action.

Rooting ourselves in nature invites us to examine the dominant legal system which has evolved to award private ownership. Ownership is protected regardless of the impact on people and living systems, but water, air and earth are resources for all life. As an earth advocate I envision a system of values that is complex enough to help us properly care for and share this life and this planet, one that understands our interdependence with the earth and the species we live with. This perspective is becoming more common as the crisis is becoming more evident. Laws that protect endangered species were an important step, but that is not enough. A hopeful landmark in our time is that countries are beginning to declare water as a human right and find ways to implement this as a reality. Ecuador, Slovenia,
Bolivia, and South Africa are leading the way. India has declared that the Ganges and the Yamuna rivers have rights of personhood. New Zealand has declared that one of its rivers has similar rights, in the tradition of the Maori. The Maori say, “We are the rivers and the rivers are us.”

Water is a right, not a commodity. Water is often taken for granted. Yet all life, including people, needs water to survive. The 1948 Universal Declaration of Human Rights states, “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing…”

At this moment in the twenty-first century, the earth faces many challenges. The human population is growing, global water consumption is increasing, and climates are dramatically changing due to global warming. We are facing the reality of healthy—or even drinkable—water being a scarce resource. In 2010, the United Nations Ambassador to Bolivia, a country that has experienced the devastating effects of water privatization, put forth a resolution declaring water to be a human right.

The United Nations resolution 64/292 for water as a human right was passed in 2010 with the support of 122 countries. It states that “the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.” (UN CESC – General Comment 15, paragraph 2). To declare a human right is to make governing bodies responsible for respecting, protecting, and guaranteeing these rights. Under the 2010 U.N. Resolution, governments must provide their citizens with access to safe and affordable water for personal and domestic use. Citizens need to be educated about their rights in order to hold their governments accountable. As more pressure is being put on our water resources, this duty of accountability is very important. Yet the United States, Canada, and the United Kingdom have not yet committed to the principle of water as a human right. To demand money for water is to demand money for life.

Water is being treated more as a profitable commodity. Governments and companies in control of water resources stand to make money by exploiting a manufactured crisis of scarcity. The problem with this is that the human need for quality water is not negotiable. While some of us may have some dollar bills in our pockets, there is no way for trees, birds, insects, and fish to pay. Water is a human right. Water is the right to life.

A JOURNEY WITH WATER: SOURCE

Every person has a water journey, for no one can go through life living without water. In my search to know water, I discovered that water has the most powerful structure of any molecule. There is nothing like H2O, no work can be done without it. It is flexible, resilient, restorative, always seeking to return to a life giving form. I have come to respect water as the most aggressively creative force we know, making every detail in our lives and everything that we depend upon possible.

From the moment of conception we all grow floating in a warm liquid. When we are born we are 75 percent water, and as we age we slowly wrinkle up to be 50 to 60 percent water. Each cell in our bodies is 99 percent water, our hearts and brains 75 percent, and our bones 30 percent. There are many ways to measure the waters in our bodies, but water we are. Water is more than a liquid substance that is essential for life; water has been proven to have memory and consciousness.

Water talks to us every day. Often it speaks silently through our bodies: thirst, sweat, heartbeat, and breath. Water gurgles, drips, sloshes, murmurs. It splashes and splatters in our kitchens, bathrooms, laundries, and gardens.

Noticing something you depend on every hour of every day is a challenging and deliberate process. Until I decided to pay attention to water, I was not conscious of how it forms and informs every detail of my life. When I became conscious of water, I entered into the mysteries of life, pulses and flows. What is the connection between water quality and aliveness? How does everything that goes down our drains affect water? Our communities thrive or despair depending on their waters: its availability, and, more importantly, the quality of the available waters. Once I began this journey, I could not turn back.

As a child, I remember playing in puddles, running barefoot in the rain, finding streams with soft green edges and smooth rocks. Across the street from my house was a stream that swelled to overflowing in big rains and then receded to a trickle. I would run to watch this fascinating event. In spring tadpoles emerged at the edges of the stream. I eagerly scooped them up, placed them in a small container and watched as they became frogs to be returned to their creek. Several years later we moved to live near a woody area...
with a creek. "Come on guys," I shouted to the neighborhood gang excitedly. “Let’s dam the creek to make a small pond.” There, rolling up our pants and tossing off our shoes, we floated a badly made raft made from branches and twigs that sank under our weight.

From 1945 to 1948 we lived on the hills outside Istanbul, Turkey, where every day a ribbon of blue, the Bosphorus, was in view. We swam in its fresh, cold, salty waters avoiding the barnacles on rocks and enjoying, with that nervous excitement of fear, the rushing tides. While swinging in the supple fig trees in my yard, I imagined swimming across the Bosphorus and walking to China. In summer our water would be turned off for weeks because there was not enough available fresh water. We used all of our water very carefully. We filled every bath tub, pots and bottles, and captured rainwater. Those precious pots of water remain etched in my brain.

Every summer, we escaped the Washington D.C. heat at my great-grandmother’s farm on the coastal town of Plymouth, Massachusetts. My family, cousins, and I swam in saltwater, roamed beaches, and canoed in a freshwater estuary. I would walk for hours on the constantly fascinating edge where the waters cast up treasure and sculpted the sands. On two family trips across the United States of America, I remember drinking from public water sources all along the way and swimming in water holes and creeks. One creek was moving so swiftly that my Dad held me as I tried to swim against the flow. Today it is almost unthinkable to drink from a stream or dip into a creek that you do not know.

Although I have spent about 15 years living and working in places where I boiled my water or suffered the consequences of grabbing an ice drink on the streets, this is a story of a girl who grew up taking water for granted (with one exception, in Turkey). For most of my life water has flowed from taps, toilets have flushed, and bathtubs have filled up. Fresh water without filters was a given; water flowed with such ease that I noticed it only as a monthly bill.

While making an artwork called A Memory of Clean Water in 1985, the paper casting of 250 feet of the Castle Creek, I learned that the waters in Castle Valley, Utah, were polluted as a consequence of agricultural practices and mining. In the process of kneeling for hours in a river bed, I became aware that water creates everything…and that I knew nothing about water. Five years after this experience, I was seeking to understand how to go forward with water as the exclusive focus of all my work. I asked myself what would water do—and concluded that water would invite everyone into the project, as collaborators. This meant that although the art projects started out with an instructional workshop, I would not direct what community participants chose to do and how. Each community would need to find their own way, including how to use available funds for their projects. Beginning with small projects—which built consciousness and inspired people to form groups addressing local waters issues—my adventures included organizing a group that saved the Edwards Aquifer; initiating the cleanup of the San Antonio River; and developing bioswales in Portland, Oregon, with a small local school—a project that grew to include a life-transforming visit to a sacred water site in China. Two years later I found myself designing and building a unique park in China, the Living Water Garden, a seven-stage water cleaning park. Since then, it has become clearer to me that we need to have a great gathering of minds and hearts to rapidly change our fracturing of the waters. In Vandana Shiva’s words, “Every ecological crisis is at the end of the day a water crisis.”

After thirty years of learning, trying, and at times succeeding, I have come to understand the real extent of how much we have damaged the foundations of living systems with linear, reductive thinking to suit a materialization of the basics that support life. We live in and depend upon a complex, biodynamic world. This world is naturally regenerative; all parts are connected, and water is the propelling element in all of these connections.

Photo Credits: Betsy Damon, used by permission.

Forty years ago, Betsy Damon stepped outside her traditional art training and carved a unique path to work with the environment, communities, science and art. She began looking to her inner consciousness as a source of inspiration which initiated her public engagement. She founded Keepers of the Waters in 1991 and has continued to work towards creating community-based models of water stewardship. Her work includes sculpture, teaching, lectures and workshops. In China, she created the nation’s first public art event for the environment, and most notably the Living Water Garden, a world renowned public park and natural water filtration model.
A Water Toolkit

By Betsy Damon

Without Water

The water molecule is the most flexible molecule we know, creating and organizing life on earth and throughout the universe. Without water there is no life. Without water there is no work. Without water there are no biological or chemical transformations.

—Betsy Damon

Introduction to the Toolkit

This toolkit is a set of stepping-stones, guidelines. The goal is to give you ideas and information to restore the place of water as the foundation of planning and design in your towns and cities. We identify social, biological, and technological processes that can promote resilience, complexity, flexibility, and capacity in human and natural systems. This is not a philosophical or an academic perspective, it is a real world experiential perspective that has evolved from my work and the work of Margot Young.

It is relationships that assisted me to overcome discouragement. Friends cheered me on, cheer each other on and help me remember where I am going. We need to be a team, cooperation is essential. Good information is essential and it can be hard to find the right information. Once you have this information, you will be able to take concrete actions.

After 75 years of living and working in a classist and racist society, I know that both social and ecological complexity and flexibility are fundamental to our survival.

We need to recognize that we are interdependent, all of us. Every community, district and city shares life-sustaining resources. After learning about your watershed and your water bank, the next step is to find the motivation to implement flexible solutions. These solutions should have the capacity to respond to extreme weather events such as those that come with rapid climate change. They will restore the relationships of small streams to larger wetlands, give our rivers space to expand and contract, create infiltration where it makes sense or collect rainwater.

In my nearly 50 years as an artist working with communities and 30 years with water I have come to understand that discouragement and powerlessness are our biggest obstacles.

It takes an active choice to live harmoniously with other life forms and share our water—to become their
guardians—and to act as if every life matters. We need all the efforts of technology, biology, engineering, agriculture, art, community, common sense, and, most importantly, a love of life. We need to listen to our hearts, a muscle that beats strongly in all species.

We cannot hold back. We cannot keep our passion for water inside. We need to talk about water—to cry, laugh, and sing about water. We need to design for and with our waters and, by doing so, learn to take them back.

“A system can be considered ‘alive’ only if it is indeed dynamic in nature.” —Mae Wan Ho, Living Rainbow H2O.

THE WATER TOOLKIT

I. Listening

Listening is a powerful tool.
Listening is the basis of relationships.
Relationships are the foundation of community initiatives.

Listening creates equity by enabling every person—of every culture, education type, gender, age, or race—to be heard.
Listening is essential to every successful project and not always easy.

Our heads are full of thoughts, worries and distractions. They get in the way of listening.
Listening is just listening, without thought, comment, or interruption. Set aside assumptions and judgments. Trust that the person you are listening to has something important to say.

Listening gives people space to find their own thinking and to reveal what’s on their minds.

For most of us, there are some topics or people that are easy for us to listen to, and others that are more difficult. The effort is worthwhile. We don’t need to agree with what a person is saying to listen respectfully.

Choose to connect with and listen to people you don’t know. If you do, you will be able to cross barriers and connect with people from different experiences and backgrounds.

When everyone is at the table listening and sharing ideas, the results can exceed expectations.

“Attention, for all its potent sensitivity, may be the spark that rekindles imagination.”
—Ellen Meloy
Once someone is heard, they may become more willing to join and share their mind.

II. The Power of Art

Art the catalyst.

Art inspires people to get involved.
Art generates public consciousness.

Art allows people to explore and thus come to understand water.

Through observation and attention, artists see people and needs that were not visible. Art invites others to see, too.
Art takes all forms.

Creating is contagious. All your thoughts are valuable. Invite others to look, think, and create with you.

If you begin creating and thinking about water, other people will be more interested in thinking about and taking action for healthy water systems.

There are thousands of artists in the world bringing people’s attention to water through the creation of songs, the planting of several thousand mangroves, protecting islands, saving wetlands, documenting, painting. Artists are a powerful force who initiate real actions on behalf of waters. They are teaching classes on eco-art. This work is building a vast network of consciousness and action.

As the public artist for the Chinook Natural Area, I was asked to create a work to celebrate the 58 acres of this park located beside one of the last pristine salmon spawning rivers. I met with all the parties involved, including numerous departments from King County Wastewater Ecology, Ducks Unlimited and citizens from the town of Carnation, WA. As we got to know each other something happened. It was decided that this site become a completely restored ecosystem, The removal of flood control berms to provide optimal conditions for salmon was a first.
It was fun to make *The Sounds of Water* at Turtle Bay Arboretum in Redding, CA in 2002. When I asked if they had sufficient water in this place, they told me they would have water forever. Nevertheless, I designed a piece with low water use and complete recycling through a wetlands filter system. In recent years a big drought suddenly caused their water supply to disappear, and this work was the only water feature still running.

**III. Principles of Water**

“If there’s magic on this planet, it is contained in water”—Loren Eiseley

Water is innately dynamic. There is alive water and dead water. Water is so universally essential in our lives but it is only recently that we have begun to understand the science of how water creates life. Aliveness is linked to the vital importance of water quality.
These are 3 principles that I think are important to keep in mind:

1. **Water creates all life.**

   In the unique medium of water, all life is born, grows, evolves, and regenerates. The complexity of life is automatic. The interdependence of all lifeforms is only partially understood.

2. **Water creates complexity.**

   You can find coherence in leaf structures, animal circulatory systems, tree branches, and complex river systems. The fractal spiral is another.
IV. Mapping

*If I had an hour to solve a problem and my life depended on the solution, I would spend the first fifty-five minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than five minutes.*—Albert Einstein

The Power of Maps

Mapping is more than a tool for organizing information: to map is to engage in a process of discovery. As you draw maps, you will discover the unique water circumstance of your community.

What is the question for your community? Is it, “What are the waters available to us?” Or, “How do we achieve higher water quality?” Or, “How do we achieve greater water access?” As you can imagine, there may be any number of key questions unique to your community.

Examples of Maps Relevant to Water

- Historical maps reveal past water sources that have been eliminated or altered. As our cities expanded, brooks and streams were covered and piped; the names given to the sewers often reveal the original water source (for example, “Freshwater Brook Sewer”). Old landfills, early industrial areas, railway yards, and other land uses that required large areas of flat land were frequently located on infilled wetlands. One use of this information could be to locate a stream that has been buried and day-light it—that is, restore it.
- Topographic maps show elevation and can indicate the natural movement of waters through the landscape. They can help you understand the contours of your watershed.
- Geological maps indicate the types of soil and bedrock in an area and can explain why water has carved a specific path or is clearer in some areas than others.
- Water infrastructure maps reveal the potable water supply systems and storm and sanitary sewer pipes that underlie our streets and buildings, as well as ditches and other water conveyances. Discovering where pipes, sewer lines, flood controls, and engineered systems are located helps us understand how our waters have been redirected, allowing us to imagine how to reconnect and restore our living systems.
- Economic maps of Area Median Income (AMI) or real estate prices often explain the distribution of present-day water resources. Too often, availability of good water is based on economics.
- Land survey and zoning maps help identify structures and interventions in the built environment by explaining the boundaries between public and private lands and permitted land uses.
- GIS (Geographic Information Systems) is the newest technology used to create the many maps you will find. It allows us to see deep beneath the surface of the earth, where underground waters travel, enabling us to determine where systems can leak or where interventions should be placed.

Where to Find Maps of Your Region

Map resources:

- Libraries
- Historical societies
- History museums
- City government offices: city planning, parks and recreation, and transportation and engineering offices
- Universities and colleges (libraries and various departments in them: geology, architecture, ecology, history, civil engineering, landscape architecture, geography)
- Municipal water treatment centers
- The Internet is a great resource for finding and making maps. Everyday citizens are recording information to make comprehensive maps of an area. Organizations are making maps available online to spread awareness of ecological and political issues.

Not all cities have maps readily available. It may be necessary to contact several institutions and companies to find what you’re looking for. Also, few organizations are interested in an overall and complete picture of the
A water system, so you may need to combine a variety of maps, scales, and sources to delineate the waters in your community.

I’ve had experiences where relevant maps could not be located. When I was visiting an artist in Dillon, Montana, I planned to hold two mapping workshops. However, nobody could find maps of the pipes and watersheds of southern Montana. Local historical maps were not readily available. Much information was missing. This was especially ominous as Dillon is surrounded by cattle ranches, which often contribute to runoff, and Montana’s economy is based on the mining and extraction industry. Without maps of the infrastructure and a clear view of the watershed, we would be unable to trace how this industry might be affecting the city’s water and local rivers.

It is always good to ask what a map might not be showing you.

**Historical Maps**

Historical maps reveal how our relationships with our geography and ecosystems have changed over time. Many cities have archives of maps, some hundreds of years old. These maps can show us how water systems flowed prior to recent human intervention. They can show where streams, rivers, wetlands, and ponds once were. They allow us to compare how a city’s water sources have changed and can illustrate how people and the landscape have influenced each other. You may also learn how old your water infrastructure is, enabling you to discover how its age affects the quality of your water.

What did this place look like before we moved here, before we filled in a certain lake or built certain dams? Each location presents different challenges and solutions based on its unique ecological and human history. For example, in the American west, water rights laws were put into place to meet the needs of the twentieth century cattle industry and a sparse population. In the twenty-first century, the needs of this region have changed, but the laws have not necessarily kept pace. Showing historic maps to present-day communities can change how we think about our water systems and begin a new conversation.

When I began working in Pittsburgh, Pennsylvania, one of my first destinations was the Heinz Historical Library. There I found maps dating back hundreds of years, including indigenous maps. These older maps show a landscape full of small streams and springs. Now, none of these smaller waterways can be found. Fifty-six streams have been buried or put into pipes, and one no longer hears the sound of water running in the city. Consequences of this include major flooding. These small streams no longer service their local ecosystems; instead, they are jettisoned into the main waterways and flow downstream.

The premise of an equitable water system is that everyone has access to clean water; that the system is sustainable and the water is healthy for the people and the land.
At the beginning of my time in Pittsburgh, major turning points were joining the green team of Larimer and meeting Matt Graham. Matt had started a company called Land Based Systems, developing software to track stormwater flow in a landscape. The map he produced for the Larimer neighborhood was a powerful tool, immediately enabling the community to visualize how rainwater fell on the Larimer Plateau. It also allowed the community to see the potential to harvest it for benefit. Living Waters of Larimer began.

When we walked the streets of Larimer, it was clear where the waters flowed and where the drainage was not working.

Matt Graham’s map. This map shows how the waters flow. The large dots show where the most water collects.

Hosting a Workshop with Maps

When you hold a mapping workshop, people like to locate their homes first. Then, invite community members to talk about the places seen on the map; they might provide a great depth of knowledge from experience, adding layers of information to the maps.

It is useful to have people with different skill sets present. Include someone who knows how to read maps, or someone that can draw and is excited about design.

In Logan, Utah, a couple of two-hour-long workshops with students and faculty were very revealing. After studying the maps of the city sewers and surrounding waters, we focused on the campus water systems where a vast complex delivers water for lawns. The groups came up with many possible interventions on the campus. Utah is not a water-rich place, and as we were working, Salt Lake City was proposing to divert the waters near Logan for the city. Ideas flowed about what could be done to bring attention to the issues and capture rainfall.

Utilize the tools of the “Discovering Water” chapter of my
book, *The People’s Water*, to explore your local waters with your group. Gathering these observations will help you build your maps further. Go out with members of your group the next time it rains and follow the rainwater, observing where it travels. Or take a walk along the edge of a stream or river. Notice where the water moves rapidly. You may discover more life near these areas of movement. Observe, too, where marshy areas or wetlands exist. Certain things will happen where water slows down. Your observations will be vital to restoring and designing water systems; you are building your knowledge of what is currently happening, and this is essential to deciding what the objectives of your designs should be.

Below is a series of questions that will help you define your local water system, how it functions, and its health. Some answers will be found in maps, others in the form of local stories, and still others in data collected by conservation organizations or governments.

- Where does your water come from: a river, reservoir, or aquifer?
- How would you describe the topography of your region? How does this affect the flow of water?
- Where are the bodies of water in your community: rivers, streams, lakes, ponds, wetlands, reservoirs, springs?
- Who has access to them?
- What kind of life do you find in and around them? Are there sources of pollution near them?
- What did your waters look like in the past? Are they different now?
- What is the groundwater situation?
- Where does it interact with surface water?
- Where does it come to the surface: wetlands, flooded basements, elsewhere?
- Are there any businesses or factories that pollute? Where? Does this affect any waterways?
- Are there areas where basements flood? Are there areas where people have very little water near their homes?
- Where does rainwater drain, and where do those drains lead?
- Where are there permeable surfaces like soil, gravel, and vegetation? Where are there impermeable surfaces like pavement, cement, and asphalt?
- Do people have problems with rainwater or water in general?
- Where and how is the water polluted?
- Watch how rainwater runs off from one property to the next or to the street. Where does it puddle? How quickly do the puddles dry? Why might that be?
- Does rainwater mostly run along paved roads or over vegetated ground and ditches?
- Where does water flow into storm drains?
- Does it run through polluted sites like driveways, roads, or fertilized lawns?
- Does it pick up sediment from yards and parking lots?
- Where does this water emerge?
- Does the stormwater run into a body of water?
- Where does your wastewater go: to a treatment plant, a river, or a septic system?
- Where is your wastewater treatment plant?
- How does it work?
- Does stormwater go into the sewer system?
- Is there a water treatment plant? Where?
- What chemicals and processes are used to treat the water?
- Where does the treated water go?
- How often does the wastewater treatment plant fail or not work?
- What happens when the treatment plant isn’t working or is overloaded?

When your group has worked with maps, you will be able to see beyond your own neighborhood to the whole town or city, and beyond that to the larger landscape. Just as we can see rainwater flowing from our roof into the gutter, we can now picture where the stormwater flows into a river, where that river flows by another town and eventually into the ocean. The water that leaves our homes continues downstream, affecting people and land along the way.
The “Toolkit” in the book *The People’s Water* will continue with eight more chapters that guide groups through learning about, designing, and advocating for living systems and green infrastructure.

Photo and graphics credits: Betsy Damon, used with permission.

Forty years ago, Betsy Damon stepped outside her traditional art training and carved a unique path to work with the environment, communities, science and art. She began looking to her inner consciousness as a source of inspiration which initiated her public engagement. She founded Keepers of the Waters in 1991 and has continued to work towards creating community-based models of water stewardship. Her work includes sculpture, teaching, lectures and workshops. In China, she created the nation’s first public art event for the environment, and most notably the Living Water Garden, a world renowned public park and natural water filtration model.
The following conversation took place at the Seminary Co-op bookstore in Hyde Park, Chicago, on June 23, 2017.

Gavin Van Horn (GVH): I’ll start. At least for me, the reason I was interested in this concept of wildness is because I’m interested in how people connect to place—to where they are. To me, wildness represents a mutual flourishing between ourselves and the landscapes we find ourselves a part of. That’s not the only thing wildness is, but that’s certainly one of the reasons it’s important to me.

We get bombarded daily by examples of human disinterest in or degradation or destruction of the natural world, but I think both John and I were interested in telling stories that we knew about other people whose communities were intertwined with the landscape—their cultures were informed by the land. And that kind of encapsulates wildness to me: that we can live with the land and respond to its agency, not just act upon the land. And I know you, John, had your own interests coming into this.

John Hausdoerffer (JH): Yeah, and I want to thank Gavin and the Center for Humans and Nature for approaching me with this project. At some point he’ll talk about how the original title was going to be Relative Wild, and what he means by “relative” is something very powerful. When he approached me, it really spoke to me to bring culturally diverse voices to the idea of wildness because I have for years been frustrated with how wilderness—and we’ll talk about the difference between wilderness and wildness—had become a divisive idea within the environmental movement.

One essay in Wildness, written by Laura Watt, is about the Pt. Reyes Drake’s Bay Oyster Company, and how even though for generations they had a sustainable food practice that San Francisco foodies were just in love with, the Drake family was removed from the land in order to create a wilderness area. This tension—what’s going on there? While Rome burns, there’s tension between wilderness activists and sustainable food activists. Why that division? We’ve seen tension between environmental justice activists and wilderness activists going back to Edward Abbey and Murray Bookchin, arguing over what is the true source of environmental problems—is it deep ecology or is it social ecology? We saw that division lead to a big fight in the Sierra Club in the 2000s. A group of anti-immigration activists were trying to dominate the board of the Sierra Club, to make it an organization dedicated to protecting open lands through keeping immigrants out [of the country]. Why these divisions? I found that the wilderness idea was causing them, and I had hope that the wildness idea—which I am going to argue to-
night is bigger than wilderness—is a unifying rather than divisive concept.

I just want to share with you briefly from one of our authors. His name is Enrique Salmón. He’s Rarámuri Tarahumaran Indian from Mexico, as well as a professor at California State University, East Bay. He talks about his language and the concept of wildness in his language, and I think it’s a pretty compelling way to challenge us with a cultural viewpoint other than my own:

There is no word for the concept wild in my native language of Rarámuri. The Rarámuri are a large population of people indigenous to the Sierra Madre mountains of Chihuahua, Mexico. The region is also known as the Sierra Tarahumara. There are roughly seventy thousand Rarámuri who continue to speak our language and live a subsistence lifestyle in this extremely remote, rugged, and biologically diverse landscape...For the longest time, the conservation and environmental movement assumed that the human-environment interface always resulted in negative outcomes for the land. The last two hundred years of exponential human population growth coupled with mass expansions of industry and globalization has certainly done little to balance out the equation. As a result, until recently, researchers had not considered the possibility that humans could actually enhance their landscapes, that human communities might actually play a role in increasing diversity, or that humans are as essential to the ecological functioning of a landscape as saguaro cacti are to the Sonoran Desert. Therefore I suggest that human communities could be a keystone species in some ecological systems.

GVH: Right. So something that you made me think about by reading Enrique’s piece is not just the concept of the human species as a keystone species, as a dramatic shaper, potentially, of the land, but Enrique also uses this term, “kincentric” landscape. Enrique’s an ethnobotanist, so his people have special relationships with particular plants. They treat them as people, and they have a shared mythos in the culture. That kincentric idea, coming back to that idea of the “relative wild”...

JH: The original title for the book.

GVH: The original title for the book. There were two reasons for that, and there are two concepts to hold on to here. One was the idea that there is a continuum on the landscape. There is relative wildness where we are right now, in our bodies, from our gut microbes—we are composed of more bacterial cells than human cells—all the way to the atmosphere. So from the gut to the sky, there is wildness. Across landscapes, from urban areas to the most remote wilderness areas, there is wildness that can be found. So it’s a “relative condition,” in Aldo Leopold’s words. So wildness is a continuum.

The other thing is kinship. We are actually related to other species. This is easy to forget sometimes, I know. We share relationships with other species. Some of those are particular, some are more special than others; nevertheless, at a genetic level we are related, we are wild to our core. Every breath we take call it theft because it’s “wilderness”—a problematic, divisive term that really has Native peoples feeling left out and colonized.

Wildness, however, is the idea that humans can be a keystone species. Through producing our livelihood, we could produce biodiversity, which you [Gavin] called agency. Through human agency, we create more agency for the land. That’s wildness—where humans are embedded in that agency—rather than wilderness, where humans are removed. So I really wanted to be involved in Wildness. For me, it comes down to finding this wildness in the agency of the land, in the people, finding it everywhere—finding it on the South Side of Chicago, finding it on a working landscape in Kansas or in India, finding it in the wilderness areas around my house in Colorado. If we can learn to find and fight for wildness everywhere, then I’ll be pretty happy. Right?
is within the cycle of wildness. So that was the idea behind the relative wild.

JH: You know, the great poet, Gary Snyder, speaks to what you were just talking about in terms of the wildness within us. He talks about our breathing. And he looks at where that word wild comes from, and it comes from will. A self-willed being is a wild being. A self-willed community is a wild community. Think about what functions in you in a self-willed way. Snyder, as a Buddhist who thinks about breathing, says that’s wildness. It starts with your breath. You’re not thinking through your breathing. Our breathing is where our wildness begins.

GVH: Snyder was a touchstone for us in some ways for this book. One of the distinctions he makes between wilderness and wildness is wilderness is a place. It can be a sacred place. It can be a beautiful place that’s considered aesthetically pleasing. It can be an awe-inspiring place. It can be an ecologically functional and healthy place that we preserve for that reason. Wildness, in contrast, is a process. So it flows through the places. But it’s also a much broader, umbrella, relational concept. There’s a depth in place associated with it.

So, I want to ask you, John—because it’s always great when we have to explain things to our kids since it helps us explain things to ourselves—in your essay, you talk about being on top of Mt. Crested Butte, and your daughter asks you what wildness is.

JH: [chuckles] Like in the middle of editing all of these essays, she asks me.

GVH: So what did you go through in your mind, and where did you finally land with her?

JH: Well, I won’t read that whole section, because it’s quite a stream of consciousness—I think it’s two pages long. And, Gavin, you didn’t edit it out, when we were editing each other. Very kind of you. Anyway, I go through a whole series of scenarios. She, at the time, was six or seven years old; she’s now nine going on sixty. In the end, I tell her:

Respecting Atalaya’s emerging understanding of a complex world, I almost tell her that wildness is more about human potential than about pristine land. Smelling the dampening air until the cold freezes my nostrils, I almost explain that these wilderness areas depict the story of people deciding to slow themselves down before taking everything, to engage the world with humility rather than just desire. Instead, I simply tell her that these areas that surround her home come from our hope to share the land with all the other species with which we evolved. Atalaya blinks at me through her goggles and simply says, “I am glad animals have places like that to live.”

I started with the simple, the ecocentric idea that value is not only measured by what’s good for humans, and that we need to share not only land but our concept of why this land had value.

I like your distinction between wilderness and wildness. You’re talking about place versus process. Wilderness is a place; wildness is a process. I would add to that distinction and say, for me, wilderness is a vital form of zoning on public land. You want your neighborhoods zoned so you don’t have a big McDonald’s in the middle. You want your public lands zoned so you have acreage dedicated to biodiversity and acreage dedicated to human spiritual transcendence: areas zoned to keep industrial extraction out to make us slow down and think about what we really need to ask from the world to live a good life, so we are pushed to experience our connection with the earth in a different way from our mechanized lives that we live out every day in our towns. The 110 million acres of wilderness we have—not counting national monuments, not counting Clinton roadless areas or Obama roadless areas—I just want to be clear, are a completely vital form of zoning.

But wildness is bigger than wilderness. Wilderness participates in wildness. Wilderness is an example of self-willed land. Aldo Leopold measured the health of land by measuring the “capacity for self-renewal.” Wildness is about renewal. Does the land renew through wolves being on the land to manage deer populations and keep soil erosion from happening? But renewal is also about a multi-generational farmer or rancher on a piece of land struggling in an economy that makes it hard to compete, encouraging him or her to exploit that land—how does that person renew so that the land is still renewable? Or Michael Howard here in Chicago—how does he work with people in the Fuller Park neighborhood who have been historically traumatized to help them through renewing the land at Eden Place? To me, that is zoning versus renewal, and wildness is part of that renewal, but I think we...
make the mistake of seeing wilderness as the goal, instead of one of many means to that end of wildness.

GVH: This makes me think. I just want to ask one or two questions about your talk with Rod Nash.

JH: Roderick Frazier Nash wrote a book called *Wilderness and the American Mind* back in the 1960s about the history of the wilderness idea in which he argues that the wilderness idea is our American revolution.

GVH: He’s kind of this iconic figure in wilderness philosophy, and John sought him out, knowing that we were doing this book and wanting to know what he thought about wildness and the way John looks at it. So people will have an idea of what Rod might be interested in, could you explain his idea of “Island Civilization,” his future vision of the human relationship to...?

JH: Yeah. Roderick Frazier Nash argues that the great American revolution is that we went from a society that saw wilderness as the place of temptation and Satan to wilderness as our playground and sacred space. He says that’s a tremendous shift in mindset for one society over just a couple of centuries. He says that’s our great revolution. So he envisions what it might look like a thousand years from now. That millennial vision is “Island Civilization.” He says, “Look, my dad grew up in horse-and-buggy America, and I fly around the world in a jet, so what are we going to have in a thousand years, you know?” Food systems, energy systems, water systems are going to be no problem for us and our impact on the earth. We are going to be able to live in these islands—one hundred-square-mile areas with high population density where people can live well and have low impact on the land and the rest of the planet. He argues that up to 80 percent of the planet can be wilderness. That’s easy for us.

Rod and I had a friendly, healthy debate, and I challenged him. I said, “Look, it’s a beautiful vision, but I’m not convinced that humans are at our best when we keep ourselves out.” And a thousand years from now I believe we’ll have evolved—not biologically, but intellectually and culturally—to the point where we can actually be a keystone species in the way Enrique talks about. Then we will be able to produce our own livelihood in ways that will also produce biodiversity and finally have a human partnership.

And he said, well, you can’t trust humans, and he quotes E.O. Wilson, who says, “Darwin’s dice rolled badly for the planet,” meaning that evolution led to opposable thumbs, rational thinking, and consciousness of species that can blow it all up. My argument is, no, we’re actually quite capable of building a home on this earth. The essays in *Wildness* testify to that. Look at Wes Jackson, who is restoring the function of the prairie by developing perennial, polycultural food systems; and Devon Peña, who works in acequia communities, where snowmelt on the mountains above is channeled through a water ditch system that is democratically managed and feeds the society while also expanding the riparian ecosystem. A thousand years from now we’re going to have more and more of those examples.

So that’s our debate. When Rod spoke to my class after this book came out, he said, “I think we’re just above being devils, and John thinks we’re just below being angels.” There we are.

GVH: Absolutely. That’s one of the things we wanted to do with this book: to identify those cases where people’s lives and livelihoods are integrated into the landscape in a very beautiful way. Your essay about the White Earth reservation in Minnesota was a great example of this. You visited Winona LaDuke, a well-known native activist, and you hit upon a question pretty quickly that encapsulates some of the practice of wildness.

JH: It’s her spiritual elder’s question, which she saw on his sister’s Facebook page.

GVH: Nice. So what is that question?

JH: The question is actually the title of our next book—for the Center for Humans and Nature, with Kate Cummings and Brooke Hecht and Melissa Nelson and me—*What Kind of Ancestor Do You Want to Be?* And that question really struck me. I think a lot about our ethics in a globalized society in terms of space—spatial ethics. The average food item travels
three thousand miles to get your plate. Do you have any relationship to the land and labor that goes into that? Do you have any sense of the consequences of your comfort; therefore, are you really making moral and ethical choices? Are we beings with agency, or not, in a globalized society? Well, this “what kind of ancestor do you want to be?” question now made ethics about time—temporal ethics. Do I have any sense of my grandparents’ grandchildren’s grandchildren and what’s going to be left for them?

So I was talking to this man, Michael Dahl, about it, and I asked him how he measured his ancestry. Because he’s not saying, what kind of ancestor do you want to become? He’s not saying, how will you be remembered? He’s saying, what kind of ancestor do you want to be—because you’re always already an ancestor.

He talked about wild rice in Minnesota. The Anishinaabe people followed a prophecy that they were to migrate west until they found the food that grew on the water. And they found that; it was in the form of wild rice. For him, if that wild rice is there—if it’s healthy—it means he’s been a good ancestor. It means he would have taken on climate change; taken on acid rain; taken on the commodification of rice elsewhere—all the things that are threatening their rice stocks, so that he could pass on that practice of place. So I ended up asking myself: What’s my rice? That’s the question.

GVH: Not being a Minnesotan. Not being on the White Earth reservation. Not being Anishinaabe.

JH: Exactly. And being decidedly white, I come from privilege. I am a transient descendent of transient people. You know, I don’t want to misappropriate or co-opt an indigenous connection with place that Michael has. So, given that reality, what is my rice? What is the basis of my livelihood that connects me to generations on both sides of me and is the basis of my ecological identity? Winona LaDuke says, “I am not Anishinaabe without wild rice in my stomach during the Wild Ricing Moon in September.” I don’t think I have that.

But I’ve done a lot of thinking about the snowpack around me. That’s the economic basis of where I live—whether that’s the tourist industry or ranching or what happens downstream between the Rockies and Mexico. My grandparents were ski bums, my daughters are ski bums—so it connects me generationally. It’s not an indigenous connection, but it pushes me to take climate change very seriously, because that snowpack is threatened. It gives me a cultural basis for my ecological identity that motivates me in my place to fight for what’s wild there.

For you, Gavin, you also looked at a level of human alienation from wildness. You visited a Greencorps crew in the forest preserves here in Chicago. You want to talk about why you choose that landscape and that group of people?

GVH: Sure. We’ve talked about wilderness areas, and oftentimes, these are zoned or preserved areas. Sometimes that encourages thinking that what is truly wild is out in a remote area—that it’s not where I am. Ecological restoration is a practice of removing species that are invasive in order to encourage the flourishing of plants and animals indigenous to an area, setting a system back on its evolutionary trajectory where that is possible. It involves a lot of labor, a lot of care, so ecological restoration seems like an accessible and hopeful practice to me. So that was the practice.

Around Chicago, a lot of ecological restoration occurs in the forest preserves, led by dedicated volunteer groups that have been at it since the mid-1970s—sometimes even as far back as the 1960s. I was curious about whether this kind of restoration work goes on in other parts of the city, and whether it occurs among people for whom it isn’t just a hobby or a passion project.

By way of background, Greencorps Chicago is a program run by the city that does landscaping, ecological restoration, and other types of work along those lines. I think 90 percent of the people who participate in the Greencorps Chicago program were once incarcerated, so it’s also a job-skills training program, a way to get people back into the workforce. I was curious about whether this kind of restoration work goes on in other parts of the city, and whether it occurs among people for whom it isn’t just a hobby or a passion project.

JH: It’s renewal.
GVH: And it’s relationship.

JH: That’s wildness.

GVH: On some level, the pickle that we get ourselves into is that when we abstract nature as something “out there,” as something other, it disconnects us. This physical work of landscape healing is a process in which our bodies are involved every step of the way. Just like with other people—we don’t get to know other people in the abstract or come to care about them in the abstract. We get to care about them by being with them. The same thing is true about other species, in a different way.

JH: One of the men working in Greencorps—Henri, a brilliant guy—talks about the process of life as a “process of becoming.” He talks about everything as filled with life. He’s a very powerful thinker, and for him he talks about wildness not being the forest preserves. Wildness was the chaos of his neighborhood. You want to talk about that difference?

GVH: Yeah. That was really good. For those of us who think about conservation issues a lot, we kind of take for granted that wildness is a positive term, or wilderness. It represents wholeness to us, I think. But of course there are other meanings for wildness. If you look at music—“Walk on the Wild Side,” “Born to Be Wild”—

JH: Gavin once sang “Born to Be Wild” at my conference in Gunnison when we were starting this project. I don’t know if you want to...

GVH: No. Not tonight.

JH: He has this kind of guttural vibrato. It’s really beautiful.

GVH: Sure, sure. But obviously something being wild can also mean out of control, it can mean disorder, it can mean chaos. It can mean the Wild West. And then, of course, when people talk about wild parts of the city, they are talking about places that are probably unsafe. Some of the people I talked to from Greencorps would say, “I can’t get behind this term wildness, because when I think of wildness I think of the chaos of the neighborhood that I grew up in.” That was a good thing for me to learn and think about more deeply, about what wildness means.

JH: And what I’m learning from this is that we need to be really careful. We want wildness to be compelling to all cultures. You look at demographic studies, by 2050, we’re a majority minority nation. It’s really important to engage all cultural backgrounds with a connection with wildness. I can’t assume as a white person that it’s going to be a transcendent experience entering into what I call wild for a person from another cultural background.

African-American authors talk in *Wildness* about the historical trauma that goes with wildness. If you don’t mind, I’d like to share briefly the ideas of two of them. One is Michael Howard. How many of you have been to Eden Place? Gotta go to Eden Place. It’s an incredible place. It was the third most lead-contaminated acreage in the country—it’s in the Fuller Park neighborhood of Chicago—and Michael Howard decided to start cleaning that up. He’s from that neighborhood, and gangs would threaten him as he was trying to clean up because they needed that land to make their economy work. There were bodies there. He eventually cleaned it up, healed the soil, restored a prairie, put in a forest, a farm. But he says he still confronts—in trying to connect African American youth to the land—a historical trauma. He talks about that in his chapter for us. Mike Bryson, a professor at Roosevelt University, comments on Howard:

Such a sense of the wild, though, is not necessarily shared by African Americans—particularly those who experienced, as Michael notes, “the disconnect from the land that took place because of the Great Migration”—who grew up in cities and left behind their rural Southern roots. The Howards fully recognize and are sensitive to this perspective, which at times serves as a conversational stumbling block in
their interactions with some African American children, teens, and adults who have no interest in, no connection with, but plenty of ingrained fear of wild nature or who understandably associate working the soil with, as Michael says, “the horror stories of slavery, about people escaping through swamps and forests,” and the subsequent disenfranchisement of Jim Crow society.

And here’s Michael Howard in his own words:

All these people were running from the farm... So for a lot of African Americans back then, the wild, the forest, the woods—that’s the boogeyland. We don’t want to go there, we’ve had negative experiences there. Our forefathers died in that swamp; our forefathers were tracked down and hanged from the trees in those woods. There was a long period in which African Americans in America didn’t get any joy in the wild in the same way that everyone else did that came to America.

JH: So how can Gavin and I talk about the renewal of wildness when in fact the wild is a trigger of trauma for many?

GVH: Before we move on, one more word about Michael Howard—one of things he does now is connecting people to place at Eden Place. They then do field trips up to the Boundary Waters, staying at different camping spots. So he’s really found a way to start people with the small, urban wildness and then expose them to other landscapes that they never would have gone to on their own.

JH: It’s really important, what he’s doing there. By restoring urban wildness, by bringing renewal to that piece of land, he’s created a launch pad for renewal by transcending that cultural trauma. When people return, they have some local wildness to stay connected with. For him, it’s not just about health of land. It’s about healing people and communities. He’s now trying to start a huge urban farm, and he said one of the challenges is finding workers because people say, “No, no, no. We worked the land for four hundred years. Not gonna happen.” Whether it’s urban sustainable food or connection to wilderness far away, there’s a true cultural component that white environmentalists need to confront and take really seriously and empathize with and learn from in imagining this new wild.

The second African American author we’d like to mention is Mistinguette Smith. She’s the director of a really powerful organization called the Black/Land Project. She has interviewed thousands of African Americans about their connection with land, and she’s found some similar things:

The relationship of blackness to land we think of as wild is always informed (but not wholly defined) by wilderness as an unsafe place. It remains inhabited by the specter of flight from patrollers enforcing ownership of black bodies and black labor. Every tree offers memories of fruits both sweet and strange. Still, through listening to black land narratives and through living my own, I know the wild is a place in which we belong and that belongs to us; it is also a physical space and an interior condition of which we have been perpetually robbed. At the base of a mountain or the edge of a city, the black wild is a state of mourning and awe.

JH: I think she’s trying to negotiate the trauma with the power of wildness.

GVH: And that sense of personal independence, expression, and sovereignty—that wildness from within that can’t be tamed no matter how much it’s suppressed.

JH: We’re in Chicago, which seems like a site of innovation around wildness, so let’s begin here. I’m curious: How do you see Chicago’s wildness as informing the potential of wildness everywhere? Could Chicago be a beacon, in some ways, of a new wildness?

GVH: Well, I think that more important than just Chicago is rethinking our cities—anywhere—as places where we can be in dialogue—not just a monologue—with the landscape. We can think about our cities and the way they’re constructed as either welcoming or not welcoming other creatures.

JH: I mean, you’ve got coyotes stopping at stoplights.

GVH: We’ve got coyotes stopping at stoplights.

JH: I mean, for real, in this city.

GVH: Right. Important to me is that cities aren’t
dismissed as something less than worthy of our attention, care, and concern in terms of our relationship to the natural world. That’s why we included these examples in the book to challenge that kind of thinking—no, wildness is here, it’s right outside our doors, it’s within us, and we can participate and cultivate that wildness. To me, that means becoming attuned to the place where you are. Not just telling stories about the place, but becoming part of the larger story of the place.

JH: I think, for me, the future of wildness has more to do with humans than with the land, in terms of sparking our own wildness or reclaiming our own wildness. I should explain that I do take very seriously the notion that climate change is threatening the existence of a third of the world’s species by end of century, and I care deeply for the intrinsic value and the ecological value and the beauty of these species we evolved with. I take that very seriously. But, for me, this capacity to produce wildness through producing our livelihood, that potential I see in places like where Enrique Salmón is from, or Devon Peña’s acequia farm, or Wes Jackson’s land in the prairie, or what Michael Howard has done here in Chicago. It suggests a new story for what it means to be human.

Over the last ten thousand years, we have been living out a story that says, “God made the world for humans and humans were made to rule it.” And how has that story turned out—for other species, for the poor, for all of us in terms of our alienation from the land that produced us, right? So what’s the new story? To me, it’s the story of co-creation. I think that finding this new wild, and fighting for it everywhere, and co-creating it, we can find a story of humans as co-creators of natural wealth with the natural world.

GVH: Something you call “wild partnership” in other places.

JH: The person who captures this idea—the story of humans as co-creators, that’s our wildness—is Vandana Shiva’s chapter in Wildness. And I’ll just share a brief section of that. And then I want to hear Gavin’s vision for the future of wildness. The future of wildness for me is the future of what it means to be human. Here’s what Shiva says:

When I talk about the infinite creative energy of the universe, I am talking about Gaia’s self-organizing energy, the creative human energy to work and to produce, to organize, and to transform. In India and around the world, this human energy has helped cultivate the self-organizing energy (whether a culture calls it Shakti or wildness) of the world. In particular, the creativity, innovation, and decision-making power of women (who still produce 80 percent of the world’s food) has significantly driven the world’s biodiversity. The majority of the eighty thousand plant species that humans have cultivated have emerged from the self-organizing, living energies of women. In other words, if we are going to redefine wildness, we have to simultaneously redefine humans as cocreators of wealth with nature.

JH: What a vision. You know, that’s not “reduce your carbon footprint.” That’s not “leave no trace.” I mean all this environmental rhetoric is about making ourselves smaller. We are not a species that wants to be small. This is huge. Co-creators. That’s epic. Shiva continues:

We both rely on and cocreate wildness when our living energies work with those of the earth. Fourteen miles beyond Gangotri is Gaumukh, a glacier formed like the snout of a cow that gives rise to the Ganges. The Gaumukh glacier, which is twenty-four kilometers in length and six to eight kilometers in width, is receding at a rate of five meters per year. The receding glacier of the Ganges, the lifeline for millions of people in the Gangetic plain, has serious consequences for the future of India. We need to generate and multiply the renewable energy of ecology and sharing, of solidarity and compassion, to counter the destructive energy of greed that is creating scarcity at every level—scarcity of work, scarcity of happiness, scarcity of security, scarcity of freedom, and even scarcity of the future. Either we can let the process of destruction, disintegration, and extermination continue unchallenged, or we can unleash our creative and wild energies to make systemic change and reclaim our future as a species, as part of the earth family.

JH: Kinship. Back to your idea.

GVH: Right, and building on that idea of kinship, one of the phrases that Gary Snyder used that stuck with me is “an assembly of beings.” You get this vi-
sion of all these different creatures gathered together, and he says, “To become part of this assembly again is in no way regressive.” To reenact our membership in this assembly of beings—you talked about the story of alienation, of separation—I think that’s the task, really, to bring our lives and livelihoods into alignment with the lives of other creatures. That will require a culture that is listening. That change of story about who we are and what we are to do is part and parcel of the stories that are told in this book.

Photo Credits:
Roderick F. Nash, Department of Environmental Studies, University of California, Santa Barbara
Michael Howard, Chicago Tonight, WTTW

John Hausdoerffer is Professor of Environment, Sustainability, and Philosophy at Western State Colorado University, in Gunnison, CO, where he also serves as Executive Director of the Center for Environment & Sustainability and as the Director of the Master in Environmental Management program. He is author of Catlin’s Lament: Indians, Manifest Destiny, and the Ethics of Nature and co-editor of Wildness: Relations of People and Place.

Gavin Van Horn is Director of Cultures of Conservation at the Center for Humans and Nature where he develops and directs a series of interdisciplinary projects relevant to the resilience and restoration of human and natural communities in the Chicagoland region. He is co-editor of City Creatures: Animal Encounters in the Chicago Wilderness and Wildness: Relations of People and Place.
Bear Awoke, by Diana Sudyka
We are all indigenous to this planet, this mosaic of wild gardens we are being called by nature and history to reinhabit in good spirit. Part of that responsibility is to choose a place. To restore the land one must live and work in a place. To work in a place is to work with others. People who work together in a place become a community, and a community, in time, grows a culture. To work on behalf of the wild is to restore culture.

—Gary Snyder

We are all indigenous to this planet, this mosaic of wild gardens we are being called by nature and history to reinhabit in good spirit. Part of that responsibility is to choose a place. To restore the land one must live and work in a place. To work in a place is to work with others. People who work together in a place become a community, and a community, in time, grows a culture. To work on behalf of the wild is to restore culture.

—Gary Snyder

There is the nature we discover and the nature we recover. There is wildness, and there is wildness. And sometimes, our own wholeness depends on the nature we attempt to make whole.

I need to explain. There is wildness where I’m sitting at the moment, a glade in Eggers Woods on Chicago’s Far Southeast Side, surrounded by a mix of American elm, shagbark hickory, bur oak, and sugar maple trees whose leaves flicker in the sunlight. It’s the kind of place that offers a glimpse of Chicago before there was a Chicago, one of the many parcels that compose the nearly seventy thousand acres of the Forest Preserves of Cook County. The preserves, along with parks, gardens, backyards, golf courses, cemeteries, and railroad rights-of-way, form the green threads that stitch wildness into the city’s fabric—that make the city a living place.

Eggers Woods is also a cultivated place. Chicago is rightly known as an epicenter for ecological restoration and for its volunteer ecological restoration movement in particular. Beginning in earnest in the 1970s, small bands of concerned citizens adopted certain neglected forest preserve parcels as experimental worksites for bringing back rare and threatened native plant species. There was a lot of work to do, and these restoration groups suffered some lumps, but their overall success—which has grown with time—has been called a “miracle under the oaks” and has become a model for other regions of the country.

Most of the sustained, volunteer-led work, however, has occurred in Chicago’s suburbs and in more affluent neighborhoods in the city. A city known for its “sides”—Far North Side, Northwest Side, North Side, West Side, Central, South Side, Southwest Side, Southeast Side—Chicago has a history that includes structural racism, economic redlining, and white flight. Like any city, Chicago bears its history into a visible present, and many African American neighborhoods, primarily on the West and South Sides, show signs of such disadvantages. For people in neighborhoods where priorities are keeping schools open and businesses functional, the opportunity to connect to the natural world, much less restore ecosystems, is not the first order of concern.

I’m thinking about such things because across the picnic bench from me is Henri Jordan. Henri is an advanced crew supervisor for Greencorps Chicago, and therein lies the exception to the rule. I have spent the last several months getting to know the people and work of Greencorps Chicago, a program of the City of Chicago that specializes in contractual landscaping and ecological restoration work.
Henri has been working for Greencorps for more than four years, and it’s easy to discern why he is a supervisor. In a word, he has presence—the kind of presence that is communicated by the way he weighs my questions, sifts them through, then measures out his words from experience. Among his crew, he’s known as “the chainsaw guy,” the one who knows trees by their Latin binomials and can discern the healthy ones from the unhealthy. He has four apps on his phone for tree identification, tries to learn a new tree every day, and reads continuously. As he puts it, “Everywhere I go, if it’s green, I’m observing it.”

Another thing about Henri: he is an ex-felon. He has lived his entire life in Chicago. By his own account, he “grew up in the ghetto and was exposed to the vicious cycle of the streets.” Like many who have been through the Greencorps program, for Henri, the job wasn’t just a job. Greencorps was a catalyst to a better life. “Everything in your life is a process of becoming,” he tells me. “The question is whether you become, and as humans we have a large say in what we become.”

In practical terms, Greencorps provides technical training, environmental education, and professional certifications to its crew members, positioning them for job placement in a range of environmental occupations. But there’s more to Greencorps than prescription burn certification and properly administering herbicides. Greencorps is an organization whose work is transforming parts of Chicago by increasing the resiliency of urban lands. Sometimes this involves removing what’s moved in—notoriously fast-spreading and invasive plants and shrubs such as buckthorn, phragmites, and purple loosestrife. Sometimes this means selective cutting of abundant trees so that light can once again reach patient seeds, which in the absence of regenerative fires have been stranded in time on the forest floor. Sometimes this means replanting species long gone, with the hopes that those animals that need them, from insect pollinators to endangered birds, will return as well.

Henri wipes a hand over his brow and removes his white hard hat, the kind you might see on a construction crew chief’s head. As he does so, it occurs to me that a new kind of construction is occurring here in Eggers Woods and throughout the city’s forest preserves—a construction of relationships between people and land, an opportunity for the emergence of wildness. There are nuts-and-bolts aspects to working with Greencorps—skill building and the disciplines of showing up on time and doing good work. But there’s also something deeper that Henri articulates: “You’re interacting with something that has life in it. Even if it’s not another human, it has life in it, [which] touches something on the inside that doesn’t often get touched.”

My conversation with Henri underscores that the longer one does this kind of work, the greater the appreciation for how a living world works, for the wild systems that define a place. When I ask him if his ability to identify different plants makes him feel more at home in the preserves, he answers unequivocally: “Absolutely. I feel connected. Words give things life.”

And what about the word wild? “I come from the West Side of Chicago—that’s wild. Chaotic... A lot of people don’t get out of those neighborhoods,” Henri responds. Gesturing around us toward the trees, he provides a contrast: “I don’t call it wild [in the forest preserves]. I call it nature. It’s what the blocks in the hood should be like—peaceful.”

Is the ecological restoration work of Henri and other Greencorps crew members a restoration of wildness in the city? It’s complicated.

 Might this be wildness—to feel like participants in something that exceeds our control...

In conservation circles, wild is a kind of shorthand for healthy. Vast mountain ranges. Foaming rivers sluicing through canyons. Page through an Ansel Adams wall calendar from the Sierra Club: you won’t find Chicago or any other urban area; you won’t even find people. The health of the land and water and clear blue skies, we are led to believe, doesn’t have much to do with human actions. In fact, the fewer of us, the better for the wild, or so goes one version of the environmental narrative.

There are other associations with the word wild that don’t figure much in conservation circles. When I asked people from Greencorps Chicago what the word wild calls to mind, as I did with Henri, they talked of lawless humans, ranging from the historical Wild West to current conditions in the West Side of Chicago. Guns and drugs, the demand for heightened awareness, checking over your shoulder, knowing what street corner you are on: these associations don’t have much to do with healthy land, and many times they indicate the opposite. Wild means out-of-control or unruly territory, broken glass, abandoned
storefronts, razor wire-topped fences, and learning to avoid such places for the sake of bodily safety.

To my eyes, there was wildness where Henri and I were sitting. There was also wildness—different in kind—a few blocks away.

The South and West Sides of Chicago can be high-risk places to grow up. The majority of Greencorps crew members call these parts of the city home. Of the persons who come through the Greencorps program, looking for career training and a fresh start, 90 percent have been incarcerated at some point. The forest preserves don’t figure prominently in their mental maps of Chicago neighborhoods, even when these preserves are nearby. Zach Taylor, the former project manager for Greencorps, told me he’s probably heard “over a hundred times” the exclamation, “Oh, I grew up my whole life right here. I had no idea this [natural area] was here.”

Curtis Moore, a young man I spoke to who is in his first year of Greencorps training, provides a case in point. He grew up “ripping and running” with gangs in Englewood in South Chicago. “I just couldn’t leave the streets alone, as far as hustling...not thinking right,” he says, and the forest preserves were “never on my map.” Later in our conversation, when I ask him about wildness, he responds, “Wow. I can associate wild with a lot of things, like what’s going on in communities all across Chicago. Just uncontrollable.” He pauses to gather his thoughts. Knowing the rough contours of the project I am working on, he continues: “I might have a different definition than you. What I see in the neighborhood, as far as all the violence, [that’s] the first thing that would come to my mind, it wouldn’t be as far as something with the forest. That’s why I can’t use wild with that. I’m so at peace there, so it’s not wild there.”

Tyrone Ellis is another Greencorps crew member I met in his first year of the program. We spoke in the Greencorps crew’s truck cab as his colleagues were felling ash trees and pulling up phragmites on a chilly day. He grew up on Chicago’s Southeast Side and describes his former disposition as comparable to a confused Tasmanian devil, “just wild, just wild.” As for Chicago, “just living in Chicago, period, is dangerous,” Tyrone remarks. Pointing north, he continues the thought: “People who don’t think so live that way.”

While wildness carries these negative connotations for many Greencorps participants, the meaning of the forest preserves, augmented by hands-on experience, changes over time. The ecological puzzle pieces lock in place, and the crew members who become advanced crew members or supervisors soon read the landscape with new vision. Controlled burns, a common restoration practice, can be especially eye-opening. This is also a management tool that lends wild new connotations. I ask Tyrone if the word wild has changed at all for him, given his time in Greencorps. “Oh, yes, it has. Wildlife. Wildfires. And both of them is good. You need the wildlife, you need the wildfire.” He then lists the many benefits of burning—nutrients released that enrich the soil, new plant growth, eliminating invasive weeds.

Another person with whom I spoke, Brenda Elmore, described her journey through Greencorps as full of new experiences. Brenda is a Greencorps success story. She graduated from the program and got a job with a non-profit conservation organization, Friends of the Forest Preserves, where she now works as an assistant supervisor. She’s been with them for three years.

Such a career would have been inconceivable to her only a handful of years ago. “Growing up, I didn’t know anything about nature,” she tells me. On the South Side of Chicago, she recalls, “The only time we could go to the woods was if we were picnicking, and we couldn’t go anywhere near the treeline. . . . To my knowledge, the only thing you did in the forest preserves was sell drugs or something you had no business doing.” It didn’t help that she was afraid of wild life. “I would run like crazy from deer. If a snake was anywhere near me, I would scream so loud you could hear me for six blocks away.” In short, she was led to understand, “Black people didn’t do nature, especially on the South Side of Chicago.” Her work at Greencorps changed her perception of the forest preserves from places of menace to places of beauty. She has since become an advocate for these areas of the city, with a particular focus on connecting people of color to the forest preserves. As she put it, black people in Chicago need to be involved because “this is our earth. We deserve to be here. We deserve to help protect and restore it.”

This kind of restoration between people and place may be wildness by another name. One face of the wild is represented by extremities—chaos, disorder, independence at the expense of others, a kind of self-will that in the long run is self-defeating. This is represented in Greencorps members’ associations of wildness with the Chicago streets. When the Greencorps members I spoke to talked about the forest preserves, how-
ever, they most often used words like peace, serenity, relief, fascination, and clarity of mind. This indicates a different—an inclusive, collective—form of wilderness. As the poet and essayist Gary Snyder put it, “When an ecosystem is fully functioning, all the members are present at the assembly. To speak of wilderness is to speak of wholeness. Human beings came out of that wholeness, and to consider the possibility of reactivating membership in the Assembly of All Beings is in no way regressive.” Ecological restoration in the city is one attempt—perhaps always inconclusive and provisional—to ensure that all members of the assembly are present. Human beings “reactivate” their membership in the process of doing so. Might this be wilderness—to feel like participants in something that exceeds our control, that transcends our daily stressors and assures us of our place in the Assembly of All Beings?

AN EMERGENT WILD

By training and empowering skilled leaders who are from communities that consistently lack the opportunities available in more affluent communities, Greencorps Chicago serves as a foundational step toward a broader sense of connection to the natural world. A common theme that emerged from my conversations with people in Greencorps was the idea of mutual healing. The land benefits, gaining a measurable amount of health, but the crew members experience positive changes, as well—some subtle, some dramatic.

Tyrone, for example, the “Tasmanian devil,” was a reluctant Greencorps recruit. He’d been in and out of the penitentiary four times, and his “mind was still in the streets.” He chuckled as he recalled the day of his interview with Greencorps and how he deliberated over what he would say to a friend who recommended the program to him: “I was thinking of a lie to tell him so I didn’t have to go.” The idea of “picking weeds” dumbfounded him. “Oh, nah, with your hands?” he remembers asking.

But being out in the field changed this perspective. Tree identification has become a passion, refined with time and experience. His perception of the forest preserves has been transformed from an “abandoned place where people dump” to “a place that we need.” This need has become personal: “I love it. When you get out here you feel a peace of mind. I go through a lot of things at home, but when I come out here it all goes away.” He’d recently read research about hospital patients with views of the landscape who experienced quicker recovery rates following surgery. This mutual healing made complete sense to him. Compared to when he was incarcerated, he said, “My mind is like on a whole other level.”

I asked Zach about whether he thought the healing impacts of doing ecological restoration went both ways—for the land and also for the people doing the work. He almost cut my question off with his response of “absolutely.” To him, the discovery that you are part of cycles that both transcend and include you is especially important to people who have been emotionally or psychologically wounded. A person may experience hardships, but “the flowers are going to come out in the spring. You can point to all these different things that remind you why it’s good to be alive. If you’re helping create that space to remind others, that’s a real positive thing.” Sometimes it’s a simple reminder. Zach thought about Owen, a Greencorps crew member who was “away” for sixteen years, and how it was a healing experience for him to crush mountain mint from a worksite and take it home to use as potpourri.

Not only are the people directly associated with Greencorps crews impacted. A ripple effect occurs as well. People I spoke with frequently noted the pride they’d gained in making their communities better places in which to live and recreate. Friends, family, and strangers noticed: a honk from a car horn with a friendly thumbs up, people recognizing the Greencorps logo on their trucks and work vests, the curiosity of young people who see photographs from the worksites on Facebook and Instagram.

There is also the impact on crew members’ immediate families. “I lost my marriage, my family due to the streets,” Curtis tells me. “I’ve done so much destruction to the neighborhoods, and now I’m able to come give back and make the neighborhood look good.” Seeing friends of his locked up, not returning, made him worry about his own three kids having to grow up without a father. His kids now recognize the motivational changes in him and that his stress levels are down because he’s “a part of something that’s bigger than just [himself].”

Henri notes that all three of his kids recycle now, that he has friends who ask him to identify the trees they see in their neighborhoods, and that his daughter has her own garden on their home’s back porch that...
includes plants grown from seeds he brings home from work. Brenda continues to draw from her own experience to “change the myth of the forest preserves” as dangerous places. This is now part of her full-time job, but it began with her children, who were immediate witnesses to her personal growth. All her children have now volunteered for various conservation projects in the city; one of her daughters became a crew leader for the Student Conservation Alliance (SCA); and her son was recently hired by the SCA, even traveling to Washington, DC, to meet with U.S. senators about conservation. “I took the fear that ran through our family and changed that fear,” she observes.

Renewing these mutual connections might be all the more important in a city, where urbanites’ dependencies on the natural world may be less apparent. “Connecting to nature will give you a better respect for life in general,” Henri notes. “Without these trees out here, we wouldn’t exist,” he tells his crew members, “so take that in while you are walking and doing your work.” Curtis echoes this, saying, “If there wasn’t no plants, there would be no us. That’s it right there.”

In regards to other animals, Curtis continues, “In the urban area, just to see all the life that’s lived off the maintenance we’re doing, that’s good to me. . . . The animals that I didn’t really pay attention to or didn’t think anything about, I have a respect for everything that’s out there now...Before when I was younger it was like ‘whatever,’ but now I just focus on peace for everything.”

Cultivating the wild can shift one’s perspective about place—by understanding the city as embedded in a larger bioregion—but it can also alter one’s perspective of time. As Henri puts it, “This was here before we were here. The land was here before the people were here, so why not get to know the land you live on, that you inhabit?” When he takes his youngest daughter to explore the local woods, “it’s like an addiction.” As they look for different kinds of trees and animals and follow the ways that water flows through these areas, Henri notes, “I want to know more. I want to see more.”

The ripple effect I heard about from the people with whom I spoke—healing the land, being healed by one’s interaction with the land, advocating to others in one’s immediate family and beyond to one’s community—has brought me to a more nuanced understanding of wildness. After the infliction of so many wounds, the healing takes time, for the land and for people. When I ask Tyrone if Chicago is a different place to him now that he knows the forest preserves more intimately, he tells me, “It’s a gettin’ better, Chicago.”

As Henri and I discuss the kind of Chicago he wants his daughter to grow up in, he talks about the need to involve more people in caring for their local environments. When that happens, urban nature isn’t an abstraction. “Now it’s part of you.” One of the reasons that ecological restoration is important within urban areas is that it provides a hands-on and close-to-home appreciation for the wild beings with whom we co-exist. This can lead to an understanding of urban areas as lifeworlds full of other-than-human ways of being, as places that we are responsible for shaping with the needs of other species in mind. Perhaps wildness, in this sense, is not something discovered so much as something that emerges—from relationships that become “part of you.”

On a June day when it finally felt right to say “summer” in Chicago, Zach and I drove to the Far Southwest Side of Chicago, a place where the city brushes up against the border of Indiana. Chicago’s muscular past is evident everywhere in this landscape: in the steel ribcages that puncture the ground, the chemical brews awaiting remediation, and the channelized and polluted waterways—all altered to suit the needs of industry. After passing semi-trucks and weaving past the Ford assembly plant, we detour down a two-lane street, pulling to the shoulder of Hegewisch Marsh.

Zach has come full circle in a way. He grew up in the Southwest suburbs, but because of his affinity for wildlands, he moved away from Chicago: “I didn’t feel there was a nature experience I could have.” Working in places like Hegewisch Marsh—a biodiverse 130 acres of wet savannah, prairie, forested wetland, and hemi-marsh that was once a degraded industrial dumpsite—helped him rediscover Chicago.

Zach got to know Hegewisch by leading Greencorps restoration crews there for four years. The area was a mess when restoration began. For decades, the marsh served as an official dumping site for toxic by-products and slag from steel production and as an unofficial throwaway area for castoff car parts and unsavory materials. The hydrology was compromised, invasive plant species ran rampant, and deep grooves from four-wheel-drive joyriders crisscrossed the property. The amount of work to be done, Zach tells me, elicited more than a few groans from crew members when they first laid eyes on the site. Curtis offered me...
a Hegewisch summary: “Woo, rough.”

Hegewisch is still a place of frayed edges. Funds have shifted elsewhere, and Greencorps is no longer on the job there. Signs of neglect are apparent. As I walk beside Zach, he notes the invasives—phragmites, reed canary grass, thistle—that are reclaiming the trails his crew built and the marsh edges that they spent many days seeding with native plants.

He shrugs his shoulders when I probe about whether he’s disappointed to see Greencorps’ work undone, redirecting my question to the experiences of the crew members who did the work. That couldn’t be uprooted. They’ll take those experiences with them. New skills, yes. New knowledge, yes. But also new relationships to Chicago and the nature within Chicago. An understanding that they are part of the larger life-world of the city. He tells me about the bald eagles he once saw here, the great horned owls that made use of a red-tailed hawk nest, and he points out one of his favorite plants, Angelica sylvestris, which looks like a creation straight from the mind of Dr. Seuss.

I tell Zach that one conception of wildness is simply an acknowledgment that the land has a will of its own. Wildness can be in the city, a self-expression of the landscape amid, alongside, and with human enterprise. Wildness, in this sense, indicates the unique expression of a landscape like Hegewisch. Rather than a declarative statement, wildness is a question that begins a dialogue with the land: What does this landscape want to be, if given the opportunity? Zach perks up at this, noting that there is a correlation with this idea and the experiences of the people in the Greencorps program. What do these men and women want to be, if given the opportunity?

I’ve walked the trails in Hegewisch a few times. A decade ago, the soles of my shoes would have melted had I strayed into the wrong chemical soup. Today, tree swallows flash their white underbellies toward us while skimming for mosquitos that hover above the shallow water. Daisy fleabane thrusts yellow sunbursts toward the sky. A dragonfly—a big-eyed, caramel-colored meadowhawk—comes to rest on my finger. Not perfect, not pure, not pristine. But relatively wild. A cultivated wild that needs continued attention, demands human involvement, and can change us as we change the city.
The Message, by Diana Sudyka
On the Wild Edge in Iceland

By BROOKE HECHT

Picture a country hanging from the Arctic Circle, where at least 80 percent of the people leave room in their minds for the existence of elves, “Huldu-folk” (hidden people), or other netherworldly creatures; where wild means vast stretches of grayness: gray, craggy mountain peaks, gray gravel, and gray ash from yesteryear’s volcanoes. If you imagined Iceland, you guessed right. And I was heading north into that gray.

I drove on roads carefully designed by the Icelandic Road and Coastal Commission, around bends that intentionally avoid the presumed dwellings and churches of elves and hidden people. I felt grateful for the possible company of these sprites, as I sometimes drove for hours without seeing another human, much less a gas station.

I had landed in Reykjavik the day before, ready for the first field season of my Ph.D. research in ecosystem ecology. My bags were full of equipment that I hoped would help me unlock ecological puzzles about what made ecosystems flourish or fail. On the bus into town from the airport, a group of women—headed north for some adventure of their own—had clucked over me, concerned that I was venturing into this remote country by myself.

I wasn’t as worried. There is really only one main road in Iceland, aptly called “Highway 1.” Furthermore, I was looking for a forest—which I guessed would be hard to miss in this vast gray-scape—a wild surprise of green life rising up from the ash.

I drove alone for two days, owing to the detour I chose to take around Snaefellsjokull. Known in these parts as the most beautiful glacier in the world, Snaefellsjokull is also the starting point for the expedition in Jules Verne’s A Journey to the Center of the Earth. I was not seeking the center, however, but the edge: forest edges, to be exact—the treeline, the forest limit. A place that might span a few steps; a place where you could throw a small stone through an ecological doorway, with you standing in forest and the stone landing in tundra. These mysterious threshold zones hold clues to what makes a forest a forest and what causes a forest to reach a breaking point and give way to tundra.

When I arrived at my destination, a forested valley in northeastern Iceland, I became less puzzled by the Icelandic belief in elves. The gnarled birches had an aura of magic about them. The drops of dew on the ancient equisetum (commonly called “horsetails” for their soft, feathery look) seemed to await collection into tiny fairy cups. What struck me most particularly was the scale of the forest. It was as if I had drunk from the Alice in Wonderland “grow” bottle as I drove. Either I was much taller than I had been two days before or else I had arrived in a miniature woodland, a fine home for elves, trolls, and perhaps a fairy ring.

The sheep that dotted some of the woodlands seemed normally sized, from my vantage point anyway. Trios of sheep (a mother and two lambs) are a regular sight across Iceland in springtime. There are a number of interesting points about Iceland and sheep, and here are four: (1) there is a distinct breed of Icelandic sheep (note that there is one breed of sheep, but thirteen different kinds of elves); (2) there are more sheep than people; (3) sheep run free, while forests are
On the Wild Edge in Iceland 57

These mysterious threshold zones hold clues to what makes a forest a forest...

enclosed within fences; and (4) sheep have everything to do with Iceland’s particular type of wildness.

A short time after arriving in Iceland, I learned that the sheep—and, to a lesser extent, their grazing compatriots (goats, cows, horses, and pigs)—have changed the Icelandic landscape so dramatically that, were the original Viking explorers to make landfall in Iceland today, they might believe they’d discovered a new island. When the Vikings arrived in Iceland, there were no native people and no four-legged inhabitants except the arctic fox. The land was not gray, but a lush green “from mountain to seashore,” with “butter dripping from every blade of grass in the land.”

In hindsight, it is easy to understand how newly introduced grazers would decimate the abundant vegetation that greeted the Viking explorers. As old trees fell, emerging seedlings were devoured, leaving little chance for new trees to grow beyond the reach of hungry sheep. Without vegetation, there was nothing to hold the soil underfoot. Where a horde of sheep had eaten its fill, the light volcanic soil simply blew away, leaving glacial till as the new terrain. The upshot was not so much a novel ecosystem as it was ecosystem loss, which comes with all the sadness that you might expect such a loss entails. This cycle (beginning with eating and ending with glacial till) continues in some parts of Iceland today.

If you know that Iceland had an influx of two-legged and four-legged creatures around 1,200 years ago, you also know that the present lack of color in many parts of this country is in fact a loss of color over this time period—and a story with many layers. I believed I would uncover important pieces of this story at the forest limit.

After spending one summer hiking every Icelandic woodland I could find, I honed in on three different birch sites. The forest limit zones of these three woodlands would become my study areas for the next few years. “Spend as much time there as you can,” one of my dissertation committee members told me. “Drink your coffee there. Eat there. And just look.” I don’t believe I could have started my research with wiser words than those.

However, there are some things you cannot see. For example, as you hike to the forest limit—straight up—there are important changes in the leaves that cannot be seen with the naked eye. They need to be measured to be known, either with equipment in the field or back in the lab with carefully transported leaf samples. One such change that is important to this story is foliar nitrogen—the nitrogen in the leaves of the birches.

Imagine that you are hiking in a forested Icelandic valley and that you begin hiking up a mountain, through the forest, and toward the forest limit. As you take each step upward, foliar nitrogen levels climb higher with you. There is an important reason for this. The higher up on a mountain you are, the colder it is. The colder it is, the harder plants need to work to photosynthesize (i.e., make their food). Nitrogen is key to a plant’s ability to photosynthesize at low temperatures.

So high levels of nitrogen at the forest limit are essential to survival. This is a pattern that is observed worldwide. I can picture the pattern of the graph in my head—foliar nitrogen increases with altitude like steps going up a staircase.

There is something else important to this story that could not be seen as I took those woodlands in, day after day, over the course of several summers, and that is the woodlands’ history. What had happened here over the last thousand or more years since the Vikings’ arrival? What about the last few hundred years?

As an ecologist, I was painfully aware of the stresses that ecosystems worldwide experience from grazing, climate change, and other human-imposed factors. What I wanted to know was this: Does a forest with a history of higher levels of disturbance have a more difficult time responding to additional stress than a forest with a lesser history of disturbance?

There was one way to find out. I would impose a disturbance on three woodland sites and observe the response. My three sites were strikingly similar birch woodlands, but they had a few important differences in their disturbance histories. My Site 1 (the forest in the valley in eastern Iceland that had me believing in elves) had not seen any serious sheep grazing for about a century. My Site 2, in a valley adjoining Site 1, was remarkably similar in all respects to Site 1, except that it had never been protected from grazing. My Site 3 was farther north—a harsher climate, a shorter growing season—and, like Site 2, it had never been protected from sheep grazing. These sites were on a gradient of stress from the least stress (at Site 1) to the most stress (at Site 3). Knowing how important nitrogen is to plant survival at high altitudes (and latitudes), I would track foliar nitrogen as my clue, using it as my
insight into how the woodlands were handling stress. I didn’t know at the time that some of the ecological models concerning disturbance, ecosystem shifts, resilience (or lack thereof), and crossing of ecological thresholds were based on psychological models of human psychic breaks and breakdowns. But now it makes sense. At what point does the accumulation of disturbances become so profound that a person—or a forest—is no longer able to function? It is important to note that the prospect of disturbing the woodland sites was not an easy one for me. I was conflicted. I was studying forests because I loved them. Was it ethical to stress my subject and push it closer to the edge, even if my long-term goal was to understand (and even promote) ecosystem resilience? My advisor, Kristiina Vogt, comforted me: the forest disturbance would be minor and temporary. The ecosystems would bounce back.

With that reassurance, I bought a lot of sugar (actually, almost half a metric ton) for my disturbance experiment. While ecologist and forest service colleagues in Iceland questioned whether I was embarking on a homemade liquor and bootlegging project, the truth was that my unusually large sugar purchase had everything to do with nitrogen. A story from one of my fellow doctoral students, Michael Booth, can help me explain how.

Michael used to begin his forest ecology presentations with a picture of a forest upside down. The roots of the trees were featured on top and the leaves down below. His point? Much of what is running the show in a forest is under our feet. In any given handful of dirt, there are millions to billions of bacteria. And these microbes can be the tail that wags the forest dog, especially when it comes to nitrogen. While these bacteria play a key role in making nitrogen available to trees and plants in their preferred form, bacteria also need nitrogen for their own survival. Can you guess what happens to nitrogen in a handful of soil when there is a significant increase in the bacterial population? The answer: The microbes take the bulk of the nitrogen for themselves, leaving less nitrogen available for plants.

I wonder if a happy, healthy forest is one that has just the right number of microbes (whether that number would be in the millions or billions, I have no idea), such that the microbial community gets the nitrogen it needs while giving the trees and other vegetation the nitrogen they need. While notions of “balance” in nature are very out of fashion, to say the least, the concept seems applicable here. Too few or too many microbes would be a problem—from the perspective of the Icelandic woodlands, anyway. At both ends of the spectrum, there would not be enough nitrogen for the plants and trees.

So what does sugar have to do with this? I could use it as a free source of energy for microbes—put enough sugar into a handful of soil and one might even cause a microbial population explosion. If I spread a bunch of sugar at my forest limit sites, where the birch trees are already at their threshold of existence, would the woodland sites with the higher levels of stress have a harder time dealing with it?

I spent quite a bit of time spreading carefully measured quantities of sugar in selected “disturbance” plots at my study sites while leaving an equal number of plots as controls (without the sugar disturbance). I carried sugar by the backpack-full up to the forest limit, ever thankful to have a wonderful field assistant to help me with the haul. We spread the sugar in the woodlands by hand. As my advisor had shown me, it’s all in the flick of the wrist.

We spent even more time gathering birch leaf samples to bring back stateside to the lab for nitrogen analysis. I packed thousands of leaves for transport in a huge box. (In accordance with my permit to transport biological material across international borders, the large box was marked “quarantined material,” which made a few of my fellow air travelers quite nervous.) I subsequently spent a lot of time in a basement lab at the Yale School of Forestry and Environmental Studies, dropping small capsules of Icelandic leaf powder into a machine that resembled a clothes washer but was in fact a high-tech piece of equipment that would help me determine foliar nitrogen levels.

I was surprised to find that my study sites did not fall into the global pattern of increasing foliar nitrogen with increasing altitude. The location of the forest limit in terms of altitude was lowest at Site 1 (eastern “elven” forest protected from grazing), in the middle at Site 2 (eastern grazed woodland), and highest at Site 3 (northern grazed woodland). So I should have seen a stepwise increase in nitrogen levels from Site 1 to Site 3. In contrast to the expected trend of nitrogen levels climbing up as regularly as stairs, the nitrogen levels at my study sites dropped from Site 1 to Site 3 (with significantly lower nitrogen levels at Site 3 than either Site 1 or Site 2).

---

BROOKE HECHT

MINDING NATURE 10.3

ON THE WILD EDGE IN ICELAND 58
While this result offered me a new ecological puzzle right off the bat, my sugar disturbance shed some light on both this unexpected result and my original question about how sites with higher levels of stress handle additional disturbance.

At the eastern protected forest (Site 1), where there were lush layers of springy moss and no sheep, the sugar disturbance caused no change in the foliar nitrogen levels at the forest limit. In ecological speak, this site had “resistance” to the disturbance. However, at the two grazed sites (Sites 2 and 3, in the east and the north), the foliar nitrogen levels dropped significantly following the input of sugar—that is, these forest limit sites showed a lack of resistance to the disturbance. The foliar nitrogen levels took a significant step down at the eastern grazed forest (Site 2) following the sugar disturbance and dropped even lower at the northern grazed site (Site 3). In fact, the pattern was once again as clear as a staircase—only this time, nitrogen levels were going down.

Here was the answer to my question (Does a woodland with a history of higher levels of disturbance have a more difficult time responding to additional stress than one with a lesser history of disturbance?): yes. The woodlands carry those stress loads—memories of the stresses, so to speak—and this affects their ability to handle new stresses that come their way.

Maybe it was a coincidence that the highest levels of foliar nitrogen were at Site 1 (with the lowest stress levels) and the lowest levels of foliar nitrogen were at the disturbed “sugar plots” at Site 3 (with highest cumulative stress levels). But I don’t think so. Here is why. More sheep equals more trampling. More trampling means less moss. Less moss means warmer soil temperatures (thick layers of moss keep soil cooler). Warmer soil temperatures mean increased microbial activity. Larger microbial populations mean less nitrogen for birch trees.

As a picture of these feedback loops began to emerge, I remembered the metaphorical story of the flapping butterfly wings that trigger a series of reactions, ending in a wild storm. Taking such a chain reaction further at my study sites, I knew that fewer (or no) plants mean no soil. No soil essentially means no ecosystem. While you might think that no ecosystem means no sheep, I saw—more often than I would have thought—sheep picking their way across a gray landscape of rocky glacial till with hardly a blade of grass in sight, and certainly none dripping with butter.

At this point in the story, it sounds like sheep are, for the most part, nothing but bad news for the birches. Moreover, the cards are stacked against the birches not only because sheep are eating them but also because sheep give microbes a leg up in terms of competing for the available soil nitrogen. However, if sheep are nothing but bad news, one piece of the puzzle doesn’t fit.

The woodlands carry...memories of the stresses, so to speak—and this affects their ability to handle new stresses.

At the eastern protected site (Site 1), the moss layers were so thick that you could fling yourself backward into the moss (a moss “trust fall,” so to speak) and land in a moss bed comfortable enough for even the pickiest of elves. A sturdy fence had excluded sheep at this woodland for a century, and the human footprint was similarly light. Is this site the most pristine? The most wild? I might be tempted to say yes, except for this: at this woodland, the altitudinal location of the forest limit was the lowest among the three sites.

The forest limit of the northern woodland (Site 3)—with plenty of sheep, the harsher climate, and a shorter growing season—definitely looked scrappier, lacking that lush layer of moss. This was not a good place for a moss trust-fall exercise—not a surprise, given that sheep trampling is not conducive to moss growth. The surprise was that this forest limit was located at highest altitude among my three sites. Despite the stresses present at this site, this woodland had managed to climb higher up the mountain than either of the other two sites. This struck me as an impressive feat. Even though I did not understand it yet, there was a consistent pattern: the forest limit at the eastern grazed forest (Site 2, with the middle-of-the-road stress of the three sites) had the middle of the road scrappiness (and moss layers), along with a middle-of-the-road altitude.

How could I solve this puzzle? The northern grazed site (Site 3) with the most stress (historical and current) had trees growing at the highest altitudes on the mountainside. With all that stress—at the higher altitudes and with the lower foliar nitrogen levels—one might wonder how these birches are surviving at all. But there they are. It’s true enough that, at these higher stress levels, the birch trees are closer to their ecological breaking point. Add just the right amount of stress (especially in the form of competition for nitrogen), and the birches at this northern site would reach a threshold where they could no longer function. In
contrast, the eastern protected woodland (Site 1) was buffered. Higher levels of foliar nitrogen left the trees some wiggle room for taking on additional stress; it was more of a birch safety zone. That being said, the protected woodland in the east did not extend up the mountain nearly as far.

At the grazed sites, perhaps the warmer soil temperatures allowed for expansion of the birch woodland into higher altitudes. While the warmer soils may have allowed the birch to exist at higher altitudes, the trees at the grazed sites are also at a higher risk for nitrogen competition (from microbes enjoying the warmer soils) and grazing (from the aforementioned sheep). In other words, the birches at grazed tree lines exist higher up on the mountainside, but at the same time, they live closer to their edge. While this may not be the safest route for the birches, it is perhaps worth the risk because the upside is pretty big: the chance at life.

It sounds familiar. Given the choice, I would rather be on the edge of human experience, certainly on the edge of human knowledge, and even tolerate the edge of emotional comfort, if it meant life. And does not history (our own and others’) show that experiences on the edge can offer important insights into both what it means to be human and what it means to be one human in particular? For me, “living on the edge” is part of the daring—and the learning—that is central to the evolution of life.

There are many expressions of Iceland’s wildness, and all these expressions depend on the presence or absence of sheep. Perhaps the most common depiction of the Icelandic wild involves Iceland’s gray moonscapes, with sheep—and not trees. However, these starkly beautiful landscapes have crossed over an ecological threshold beyond which it is very hard to return. These landscapes are wild and wooly, but if you do not know how they came to be as they are, you may not be able to put your finger on the sadness that you might sense in the haunting gray vistas.

One could argue that the lush, protected woodlands are Iceland’s most wild places, despite the fact that they are enclosed by human-made fences. These sheepless woodlands offer wild green memories seemingly borrowed from the time of the Vikings and carried into the present day by their human—and elf—protectors. On the other hand, in some places, Icelanders ask the Icelandic Forest Service not to plant more trees. The chief of the Icelandic Forest Service, Pröstück Eysteins-son, told me that in such cases he hears the complaint that trees will “ruin the view.” “They are optimists,” Eysteinsson retorts, because it is, of course, no small task to restore a whole forest ecosystem anywhere, much less in such a harsh climate.

If I were to show you what I believe to be the wildest places in Iceland, however, I would take you to the forest limit, to a birch woodland populated with a good number of sheep and enough moss to satisfy the average elf. Mind you, this place would not have too many sheep, nor too many soil microbes, for that matter. I would take you to a place where birches breathe life into a landscape shared with sheep and their people, a place where the story told by both the sagas and the landscape itself is a story of life taking a chance—on the edge.
Wildthings, by Diana Sudyka
Wilderness exists in all degrees, from the little accidental wild spot at the head of a ravine in a Corn Belt woodlot to vast expanses of virgin country...Wilderness is a relative condition.

—Aldo Leopold¹

Our four-car caravan leaves the creekside parking lot, winds across the valley, follows the curves of a narrow road, climbs up a bank of steep, oak-forested hills, and rolls through open pastures and upland crop fields toward the ridgetop farm of Joseph Haugen. Most of the twenty university students have no idea where we are. There is no reason they should. Some have come from ten thousand miles away. But here we are, a few miles from the Mississippi River in western Wisconsin, heading to a small farm where eighty-eight-year-old Joseph now lives alone. His older brother Ernest, with whom Joseph lived and farmed this land all their lives, died two years ago. The bachelor brothers had sold their dairy herd some years before but kept three Jersey cows for milk, for company, and for continuity’s sake. The lede of the obituary in the La Crosse Tribune read, “Ernest Haugen, a farmer and champion of land conservation, died Thursday at age 90, just five weeks after milking his last cow.”

We pull into the Haugen farm. Its modest old farmhouse sits on one side of the road, outbuildings on the other—a not-uncommon arrangement in this part of Wisconsin. The students settle onto the sloping lawn, sip from their water bottles, and enjoy the morn-morning summer sun. I and my friend Jon Lee, who farms nearby, go to fetch Joseph and three wooden chairs.

Jon knocks on the door. “Good morning, Joseph!” he says loudly. Joseph’s hearing has faded.

“Hello, Yon.” Joseph speaks with a second-generation Norwegian accent. He is slight and wiry. He’s a smiler and lights up as we meet him at the door. He wears blue jeans, a plaid, short-sleeved shirt, and a ball cap. He walks haltingly with his cane across the grass. For someone who comes close to fitting the stereotype of the stoic Norwegian bachelor farmer, he enjoys our having come for a visit. But he also tires more easily these days, so we must make good use of the time with him.

The Haugens and their neighbors in the Coon Creek watershed were revolutionaries. In the mid-1930s, the farmers of Coon Valley came to terms with their land, with each other, and with the actions of their own forebears. Three generations of post-settlement farming and flooding had ravaged the water-sheds of these steep-walled valleys. The region’s fine loess soils—rendered vulnerable by heavy grazing, constant mono-cropping, and up- and downhill plowing—had melted away in heavy rains. Chasmic gullies ate into the hillsides, the eroded soils burying downstream homes, farms, and businesses. Down-valley, in Chaseburg, you can find the tops of chimneys just barely poking out above the ground. In 1935, conservationist Aldo Leopold summarized the situation: “Coon Valley is one of a thousand farm communities, which through the abuse of its originally rich soil, has not only filled the national dinner pail, but has created the Mississippi flood problem, the navigation problem, the overproduction problem, and the problem of its own future continuity”²
Joseph is among the last living links to that generation of revolutionaries. That is why we wanted the students to meet him.

We sit in our chairs on the lawn and share a few stories and questions. Joseph, in his lilting accent, recounts how all this looked eighty years before. He remembers the government engineers who helped lay out the contours. He describes the changes in wildlife: fewer grouse and quail now, but the return of deer, turkey, even rabbits. He recalls life on the farm with his brother. There is a famous story told about Joseph. He is said to hold the all-time record for sustained milking, having attended to his cows every single day at 5:00 a.m. and 5:00 p.m. for forty-seven straight years. In all that time, he missed only one milking. And that was because he was called into town—"for jury duty!"

Before Ernest died, the Haugen brothers put their names to a conservation easement for their 160-acre farm, protecting it forever from development. Their final act of grace. The revolution continues.

Our Q&A session comes to a close. The students have sat rapt for the last half hour, half bemused, half in awe. They gather themselves together, and we prepare to head on to the next stop on our tour. We help Joseph back into his house. The mudroom is dusty and weathered. There is kindling in a weathered wood box. Joseph heats and cooks with a wood stove. He smiles as we say good-bye.

Joseph Haugen is an anomaly.

I live a hundred miles east of Joseph, on the other edge of anomaly.

We both dwell in the Driftless Area, where the flat land wrinkles. Where the back roads and corn rows are not straight but curve around tight bends and through sweeping arcs. Where land uses don’t follow the checkerboard grid of the land surveyors’ township and range lines—the rigid pattern familiar to anyone who has flown over the American Midwest—but go awry and get twisted. Where reality loosens the fixed grip of the rational and orderly. Where abnormality is not only accepted but unavoidable.

Beyond the technical details of the innovative field projects, the work at Coon Valley and throughout the region reflected a radical new approach to conservation. Here, conservation focused not on protecting large expanses of public land but on the restoration of private lands and collaboration among private landowners. It did not treat parcels of land in isolation but involved an entire community and a whole watershed. It brought in specialized agronomists and soil scientists and foresters and wildlife biologists, but it integrated their perspectives, skills, and expertise in the field. It recognized the need to rebuild and sustain the economic productivity of the land but saw that this could only be achieved by recognizing a broader set of values and respecting the native qualities and wild ways of the land itself. In repairing the Coon Valley landscape, its people helped redefine the very meaning of conservation.
Grant, Platte, Pecatonica, Sinsinawa, Galena, Maquoketa, Apple, and a thousand other smaller rivers and creeks, rivulets and cold springs. Geologists describe the characteristic pattern of the Driftless river drainages as dendritic—like the branching of a tree or the fingers on our hands, like the splayed-out interconnecting ends of our neurons.

The Driftless Area has other names. Geologists sometimes refer to it as the Paleozoic Plateau. Some call it the driftless zone or region. Around La Crosse, Wisconsin, its municipal heart, people speak about the “coulee region” (from the French Canadian coulée, from the French couler, meaning “to flow”). In other areas it goes by Little Norway or Little Switzerland (reflecting segments of its European settler demographic).

Here’s the key thing to know about the Driftless: it defies the common image of the American Midwest. Because the landscape was never leveled by the glaciers of the Pleistocene, it is not pancake flat. You can’t drive straight through it at eighty miles an hour on the way to Denver. It slows you down. It makes you turn. The Driftless is an anomaly. Through the recurring episodes of Pleistocene glaciation—seventeen pulses of expansion and shrinkage over two and a half million years—ice hemmed in the Driftless on all sides at one time or another but left its interior ice-free. To the east, Lake Michigan’s north-south basin served as a sluice, channeling one great lobe of glacial ice through its periodic advances and contractions. To the north, the ice sheet dove into the depths of Lake Superior’s bowl, while the hard bedrock highlands just south of Superior limited ice flow into what is now Wisconsin.

The southern flanks of the ice sheets were relatively thin, and even modest variations in topography were enough to influence the shape of the glacier’s edge. To the west, the great ice had an open field—the flatlands of the mid-continent—to ease its way south. As the ice sheets advanced and receded, over and over, they scraped clean the high-latitude and high-altitude landscapes of the continent but missed the Driftless. The most recent advance maxed out some twenty thousand years ago, melted back, and left behind its burden of boulders, gravels, sands, silts, and clays—the “glacial drift.” But this odd exception, this large dent on the southern margin of the North American ice, remained unglaciated and, hence, driftless.

A few miles from the Haugen farm, on the western edge of Coon Valley, a roadside historical marker commemorates the revolution: “Nation’s First Watershed Project.” The text explains that this valley served as “the nation’s first large-scale demonstration of soil and water conservation.” In its own way, this marker might well be placed alongside those that stand at Lexington and Concord, Seneca Falls, Fort Sumpter, Little Big Horn, Pullman, Selma, Stonewall. Those places became emblematic of dramatic changes in our nation’s human relations. Coon Valley, in the heart of the Driftless Area, was, and is, symbolic of far-reaching changes in our human-nature relations.

The Driftless Area is not a “pristine” wilderness. Humans have played a transformative role in the region ever since Paleoamericans, drifting along the edge of the receding glacier, searching for favorable hunting and gathering opportunities, came upon the great gap in the ice wall. Although the debates among New World paleontologists continue, it appears that the newly arrived humans and their descendants were complicit in the extinction of the mastodon and mammoth, the dire wolf and short-faced bear, the giant beavers and ground sloth, ancient camels and horses, and other Pleistocene fauna. Over the next dozen millennia, a series of Archaic, Woodland, and Mississippian peoples made their home in the Driftless, hunting and fishing, growing gardens, running fire through the prairies. In the later stages of prehistory, they inscribed their own distinctive marks on the land: the Driftless Area was the epicenter of the effigy-mound-building cultures of the mid-continent, their varied earthworks dotting the landscape in profusion (they still do, even after widespread destruction of mounds over the last two centuries). Modern tribes of the Driftless landscape include the Ho-Chunk, Sauk and Fox, Santee Dakota, Kickapoo, and Ojibwe. European explorers and missionaries came into the Driftless starting in the 1600s, to be followed by transient trappers, miners, loggers, and, in the mid-1800s, immigrant settlers. By the 1930s, three generations of farming the Driftless ridges, slopes, and valley floors had brought a measure of prosperity but also an accel-
erating rural crisis in the form of ruinous soil loss, flash flooding, degraded woodlands, and depleted wildlife (as so distressingly exemplified at Coon Valley).

The Driftless Area is, then, a long-peopled and much-used landscape. And as with the rest of the planet, more than four hundred parts per million of atmospheric carbon dioxide (including the 120 post–Industrial Revolution parts) now waft over the coulees. Still, the earth endures and reminds: however changed and however constantly changing the landscape, it is not and will never be a completely humanized one. On the steepest slopes with the thinnest soils and driest conditions, remnants of the pre-European vegetation—“goat prairies” and oak savannas—still hold fast onto the outcrops. The sandstone, limestone, and dolomite bedrock, poking out of the hilltops like impacted molars, ground us in the non-human and pre-human cycling of carbon and minerals among atmosphere, ocean, and earth. The region has its share of dams and ditches and dikes, but the dendritic network of branched waterways still utterly defines the region.

And it was the way of water that finally forced necessary changes in land use in the 1930s. In the face of destructive floods, gullied slopes, sloughing soils, and dissolving pastures, people in the Driftless had to make a turn. Of all the restorative measures that the region’s landowners adopted and the many that have been retained since, the most readily visible are the alternating, contoured strips of crop and pasture, hayfield and woodland edge, that hug the Driftless hills. Retaining soils, recycling nutrients, interrupting the gravity-pull of water downhill, the contours are no-

where uniform; they are unique to each piece of land, expressing its Paleozoic past, its land-use history, and its contemporary land ownership. Each parcel tells a tale of a farmer willing, at some point, to counter convention—perhaps even a neighbor, a friend, a father—to change from plowing straight up and down the slope to following the lead of the land and turning with it. So basic, and so radical. Such a wild thing to do.

If the Driftless Area is not “pristine” nor thoroughly humanized, neither is it like the rest of the agro-industrial American Midwest. It is not wholly engineered to serve as a mere medium for corn and soybeans bound for the global market. It has not been made efficient to the point of diminishing returns. The goat prairies, woodlands, bottomland forests, riparian wet-lands, rivers, streams, and springs keep the landscape diversified. Smaller-scale dairy and livestock operations, with actual grazing animals, remain relatively viable so that a large portion of the land is covered in permanent pasture. The corrugated topography does not lend itself to ever-expanding economies of scale. Even the big-box stores have a hard time squeezing into the narrow valleys. Whatever algorithms allowed Walmart to proliferate with surgical precision, conquer the flat Midwest, and redirect the flow of capital, they presumably had to be rejiggered in the Driftless.

Like all places, then, the Driftless Area landscape is a complex expression of natural features and processes that are always shaping, and being shaped by, human actions that began long ago and that continue up to this instant... including actions unforeseen even a few years ago. The near-surface sandstones so characteristic of the Driftless now make the region ground zero for the extraction and processing of “industrial sand,” an essential ingredient in the hydraulic fracturing (“fracking”) process. The modest economy of the region makes the prospect of quick frac-sand profits attractive to many landowners and local municipalities. The global economy—and the fossil fuel juggernaut that feeds it—leaves no place untouched. Here, it scrapes land bare in a way that seventeen onslaughts of glacial ice over two thousand millennia could not.

And so the human impressions on the land emerge and fade, accelerate and slow, intensify and wane. Since Joseph Haugen was a boy—since the Haugens and the other farming families along Coon Creek signed up for the watershed restoration project—the Driftless landscape around him has changed. In many ways, it’s grown wilder. Its soils are healthier, more stable, more productive (agriculturally and ecologically). Its surface waters, slowed in their overland flow, clarified by infiltration, chilled by their passage un-
underground, now support thriving populations of trout (and a thriving fishing economy). Its remnant prairies and savannas are treasured. In the last two decades, black bears have come into the region from the north in increasing numbers. Gray wolves have reestablished themselves along the northeast edge of the Driftless, with occasional dispersers crossing over and testing the levels of human tolerance. Phantomlike, cougars come and go amid the coulees, caught on trail-cams as they arrive from as far away as the Black Hills and head off stealthily to points east.

Even as the American Midwest was surveyed and settled, gridded and sodbusted, plowed and ditched, simplified and commodified, the Driftless Area in its midst took a different path. The patterns and methods of land exploitation that worked so smoothly in the flatlands—that assailed the native flora, fauna, and peoples, that disrupted the region’s soils and waters, that imposed supposed efficiencies—met their match in the convolutions of the Driftless. Here, the main stream of culture had to self-correct. Here, that culture had to admit to itself that self-correction was in fact called for and that progress does not always entail going full bore, heedless, straight ahead.

Over the last decade, several “five-hundred-year” floods have come to portions of the Driftless. The Haugen farm was among those in the path of several epic rainstorms, intense downpours of the sort that are expected to become more common with accelerated climate change. Even the professional soil and water conservationists who most closely monitor these rain events were surprised and encouraged to see how well the watersheds responded. The conservation measures first adopted seven decades before did their job—performed, in fact, beyond their design specs. Here, where the nation’s first watershed project was undertaken, we learn vital lessons for the uncertain future: as we ignore the particular qualities, needs, and opportunities of the land, we put ourselves at risk; as we work with the wild, the land grows more resilient; and as the land grows more resilient, so do our communities.

Throughout its history, the Driftless Area has regularly attracted renegades, refugees, resisters, and adventurers. Ho-Chunk who were removed time and again from their homeland but whose love of the land kept them returning. Fur trappers from France. Lead miners from Cornwall. Homesteaders from out east. Quakers who came in shortly after Wisconsin became a state in 1848. German “Forty-eighters” and Scandinavian farmers. Escaped and freed slaves who, before and after the Civil War, settled in several communities in Grant, La Crosse, and Vernon Counties in Wisconsin. Black Hawk and Frank Lloyd Wright and Aldo Leopold. Since the 1960s, the Amish have come into the Driftless, drawn by its rural character and relatively affordable farmland. The Driftless remains a tolerant home to the unconventional: independent farmers, seed savers, organic growers, aging hippies, young agrarians, outsider artists, Wiccan worshippers, unpredictable voters, river rats, trout bums. Anomalies all.

Another visit, another farm.

Just a few miles away from the Haugen farmstead, and just a couple of years before, I was at work with a film crew documenting a bit of Coon Valley’s conservation history. My filmmaker friends Steve and Dave—from California and Colorado, respectively—were new to the Driftless. We asked the indispensable Jon Lee if he could help us locate an Amish farm where we might be able to film. We did not want to impose, especially on a mellow midday in early October—prime harvest time. But soon we found ourselves on another ridgetop farm. The farmer was hitching his team of brown-and-white Paint/Percheron horses, preparing to bring in hay and oats. He agreed to let us film but requested that we not record any closeup images. He also asked us, by way of barter, to help him pitch a load of straw bales.

After finishing the chore, we waited for the farmer to harness his team and come around the fields. We stood gazing across the valley, where the local Amish schoolhouse sits on an adjacent ridge. Recess had just been called. Fifteen boys and girls, dressed in brown and blue, bonnets and suspenders, emerged and commenced playing baseball. We watched with fascina-
tion. A right-handed pull hitter had it made: one line drive into the clover, in the steeply pitched Driftless left field, and the ball would roll on until it reached the Mississippi River. We listened to the click of bat on ball, the laughter of the children, the rustling of the leaves in the autumn breeze, the whinnying of the horses behind us.

During a pause in the action, Steve offered color commentary. Then he said, balanced perfectly between joking and seriousness, “I have never felt so American in all my life!”

A bucolic moment, caught on memory, framed by the billowing hills and odd angles of the Driftless and by the unsettling tensions and restless discontents of our times. But even the Amish—especially the Amish—are nowhere near as simple as they appear to be. It is not a simple life that can defy pressures to conform, or simple convictions that can maintain modesty. It is not simple routine that allows a man to milk cows for forty-seven uninterrupted years, or simple warmth that allows an octogenarian to smile when strange students come knocking, or simple need that causes farmers and tractors to turn with the contour. It is not a simple notion of the wild, or the human, that brings us around. We try to impose our will, yet we are shaped fundamentally by the wild, the spontaneous, the non-human, by forces that are greater than us, by realities that are older than us, by futures that draw us out. We are always finding ourselves on the edge of anomalies. And anomalies—with proper care and cultivation, exploration and contemplation, coordination and action—can seed revolutions.

Curt Meine is Senior Fellow with the Center for Humans and Nature and with the Aldo Leopold Foundation. He lives on the edge of anomaly near Spring Green, Wisconsin. He is also co-editor, with Keefe Keeley, of the newly published The Driftless Reader (Madison, WI: University of Wisconsin Press, 2017).

Photo Credits: Curt Meine and Jim Klousia for contour farming in Wisconsin’s Driftless Area, courtesy of Edible Madison magazine

NOTES

Arthur Melville Pearson and I are at the Gaylord and Dorothy Donnelley Foundation offices where Arthur works as the Director of its Chicago Program. The Foundation supports land conservation, artistic vitality, and regional collections for the people of the Chicago region and Lowcountry of South Carolina. From the enclosed balcony on the 26th floor on which we sit, we see the glistening Chicago River and occasionally two peregrine falcons hovering in search of prey. In the midst of the city, we are pleased to see that magnificent creatures and natural areas are in evidence. It is a good place to begin our discussion about Arthur’s biography of George Fell, a man who dedicated his life to reminding future generations of the necessity of preserving the presence of nature in our lives.

JB: Your biography of George Fell, a remarkable figure in the history of natural land conservation in the latter half of the twentieth century, was just published by the University of Wisconsin Press. Is The Force of Nature: George Fell, Founder of the Natural Areas Movement, your first full-length book?

AP: Yes. I’ve written a numbers of articles, but this is my first book.

JB: How did you choose George Fell as a subject for a biography?

AP: Well, he sort of chose me, or at least Jerry Paulson did. Around 2002, I got a call from Jerry Paulson, an old friend whom I had known through the Wetlands Initiative. Jerry was then the Executive Director of the Natural Land Institute of Rockford, Illinois. I knew of the Institute, of course. And Jerry knew that I had been writing about conservation over the years. He said, “Hey, we’ve got a fiftieth anniversary coming up and we’d like to honor our founder, George Fell. Would you like to write a short biographical piece on him?” And I said, “Sure. But who is George Fell?” I had never heard of Fell in all the years I had been writing about conservation. As I came to find out, George was not someone to call attention to himself. Anyway, unsure exactly what I was getting myself into, I just dove in by reading about George for the Natural Land Institute.

JB: And what did you write for this essay?

AP: I wrote a brief biographical piece, about twenty-five pages, that is nested within A Legacy of Natural Lands that talks about the fifty-year history of the Natural Land Institute—all of its preserves and what the organization is doing now. In the middle is my honorific to their founder. It’s about George’s early years, his founding of The Nature Conservancy, the Nature Preserve Commission, and the Natural Land Institute—the highlights of an extraordinary life and an extraordinary career that lasted nearly half a century.


AP: I did not.

JB: But you did come to know Barbara Fell, his wife, to whom you have dedicated The Force of Nature.

AP: Yes. I came to know Barbara well. In fact, I dedicated Force of Nature to her. There’s a book by Stephen Fox published by the University of Wisconsin Press entitled The American Conservation Move-
talking about individuals who do extraordinary things. You describe Fell as a force of nature in both a literal and figurative sense, a creator of conservation organizations that have long outlived him. Your book allows us to see Fell’s “force” as a temperament that created things but that often led him to leave the organizations to others who disagreed as to how those organizations should be managed. You write that one of his board members said, “George didn’t want oversight; he wanted endorsement.” Is Fell’s single-mindedness typical of others who have created organizations that care for natural areas?

AP: As I also point out in the book, there are a number of other conservation luminaries who were exceptionally strong willed in their convictions. In order to defy the odds, to create something that doesn’t exist, to make something happen that a lot of people have talked about but haven’t had the wherewithal to actually make happen—all this requires that you have a determination, a tenacity that can manifest itself in different ways. David Brower, for instance, was very much a firebrand, a strong-willed personality who drove the evolution of the Sierra Club by force of will. George Fell, I think, was at the other end of this spectrum in terms of his temperament. He was incredibly methodical, patient, tenacious—he just never stopped no matter what the obstacles. He was like water. Water is going to find its way eventually. And this is one of the things I admire most about George. He tried for five, six, seven years to get a nature preserves act passed in Illinois. It didn’t happen. And then he thought, “Okay. I’ll go to Washington, DC, and get something like that started at the national level,” which is exponentially harder. And he did it in the founding of The Nature Conservancy. And when that chapter ended with his untimely parting of the ways with the Conservancy, he returned to Illinois and worked for several more years to finally get the state natural areas legislation pushed through. Talk about
sticking with it.

I think many people at several points would have said, “I tried. I can’t do it. It’s too hard. It’s not going to happen.” George just never quit. Unless you have that determination, as George himself said several times, it’s just not going to happen. Well, he had it. The flip side, though, is that once you actually achieve your goal of creating something, that single-minded determination can be pretty difficult to live with. That’s where George struggled. Throughout most of his career, he wasn’t a good compromiser. He wasn’t a good diplomat.

JB: In a not-for-profit organization such as The Nature Conservancy and other institutions that he founded, one has to be fairly sociable. You describe Fell as being fiercely independent. And he oftentimes had to move from the head of the institutions that he founded because he wasn’t able to raise the money they needed to survive.

AP: George understood the need to raise funds, but it wasn’t his particular gift. In the early years of The Nature Conservancy, it was Richard Pough, the Conservancy’s third president, who proved the natural fundraiser. “Pough, rhymes with dough” is how one writer described him. He was gregarious. He could raise money just as easy as falling out of bed in the morning. That was his gift, his vital contribution to the early days of The Nature Conservancy.

George, on the other hand, was adept at putting the structure in place, the bones of the organization—the chapter system, the membership system, those kinds of things. This is where the real dynamic nature of The Nature Conservancy was so fascinating in the early days. You had two powerful, tectonic forces in George Fell and Richard Pough. Personality-wise, they were polar opposites. In a perfect world, they would have been a strong complement to each other. As it turned out, they ended up in strong conflict. At the end of the day, one of them had to go. George went to great lengths in his own stubborn way in trying to maintain his position, but he lacked the diplomacy skills to navigate this kind of thing.

JB: We see today in many not-for-profits that presidents and directors are chosen by board members not only for their leadership skills, but also for their ability to raise money. It seems that Fell, early on in his life, wanted just to be working in nature. He was adamant that he should be on the riverbank, on the prairie, in the woods. When he and Barbara were married, they travelled all over Illinois looking for natural areas that were in serious need of preservation. He wasn’t a people person. He preferred spending his time on the land.

AP: Yes. I don’t want to be too much of an armchair psychologist, but I would say he was a classic introvert. So was George’s father, a prominent psychiatrist who was most happy when he was out cataloguing all the native plants in Winnebago County, Illinois.

You get the sense that George yearned to have more of a relationship with his father. There is some indication that they did a little botanizing together. As best as I can discern, George came to love the native plants that his father loved as a way to be closer to his father. This shared botanical passion is a bond that continued to connect them during the remainder of George’s father’s life.

JB: In fact, George was so independent that he didn’t follow in his father’s military footsteps during World War II. George made a decision to be a conscientious objector, even though he was a healthy young college graduate. You write that he was out in nature quite a bit, that he met the physical requirements for a soldier. Why didn’t he serve?
AP: This is where, as a biographer, you have to be careful. How far can you go in projecting why your subject did or didn’t do something? There’s not enough material to say definitively why he chose to be a conscientious objector. We know for a fact that he was anti-religious, so it wasn’t on religious grounds that he objected. His sister related that she supposed George simply had a moral or ethical belief that killing people was wrong. George himself never revealed why he opted out of military service. In any event, that must have been a very hard thing for a young man to do, to make that kind of big decision in defiance of a father who had been an officer during World War I and had served on the National Medical Advisory Board of the United States Army during World War II. And by and large World War II was a popular war in terms of the nation being behind it. If you weren’t for the war, you were branded all kinds of really bad things. And George was willing to take that on, which ultimately speaks well of him and his independence. When he believed something was right, he stuck to his guns, no matter what the rest of the world thought.

JB: But he was put in a situation during World War II, as many conscientious objectors were, in which he had to contribute directly to the war effort. Can you elaborate on that a bit?

AP: The whole notion of being able to have conscientious objectors during World War II was that for the first time in this country, the purpose was to be able to provide alternative means of national service. Some of those objectors were the first smoke jumpers who helped put out forest fires, which was very dangerous and risky. Many volunteered their bodies for medical science to study the effects of DDT, typhus, and starvation. So it wasn’t that they lacked bravery or that they didn’t want to help. They just wanted to do it in a way that they believed to be ethical. George’s way of helping was to find ways of dealing with soil erosion. At first blush you might think, “Really? Soil erosion? That’s national service?” Well, we have to remember that this was soon after the devastation to farm country caused by the Dust Bowl of the 1930s. To continue to have renewable resources, we had to do a lot better job of conserving our soils. That’s what George signed up to do over the nearly five years he spent in Civilian Public Service camps.

JB: Do you think that that experience helped to equip him with his organizational skills and vision?

AP: As noble as the whole idea of having alternative service for conscientious objectors was, in practice it largely turned out to be a means for the federal government to keep conscientious objectors out of sight and out of mind. As the war progressed, there was less and less work to do. It was just, “Go to these camps. Be quiet. Don’t cause any trouble. Leave us alone.” George was frustrated by not being able to help as much as he knew he could. So, one thing the experience reinforced for him was a very low opinion of government. Another thing George took away from this experience was the revelation that he was a born organizer. Constitutionally unable to sit still and do nothing, he spent huge amounts of time trying to improve the operations of the camps by rewriting by-laws and organizing strikes for better conditions. He learned by doing, to try to make a difference even though few others seemed to care.

JB: As Fell’s biographer, have you yourself been influenced since you began to study his life and work? You and I have been friends for many years, and I know that you personally have been involved in natural land areas for a long time, most recently at the Midewin National Tallgrass Prairie south of Joliet.
AP: I think that trying to understand someone—what motivates them, what defines them, and what they stand for—you can’t help but to reflect on yourself. In the course of writing the book I have come to find several areas of commonality between George and myself that have helped me to empathize with him. I am of a more introverted nature.

So I recognized that in George. In my younger years, I was my own kind of stubborn and strong-headed person, without enough experience to be right about much of anything. This is the way it has to be, damn it, and I’m going to make it happen. Mostly what I accomplished with that kind of mindset was a lot of bumps and bruises to myself and probably to others as well. Those were not always my finest hours.

I think that George, too, had to suffer some of those bumps and bruises in pursuit of what he wanted to do. I think he had a particularly hard time with the idea that being right doesn’t necessarily make you right—you still need to convince enough people to go along with you. George struggled with that. Time and time again, he couldn’t stop being right all the time about absolutely everything with no compromise possible.

One other thing I like to think I share with George is having become a little wiser over time. I really admire that George eventually found a way to stop insisting that it was his way or the highway—with the Natural Areas Association, for instance, an organization that he just knew had to be structured in a certain way. But when his colleagues said, “No, we want to do it a different way,” he said, “Okay.” It might have taken a while to get there—he was in his sixties or seventies by then. But as a person, as a human with his own character arc, if you will, he finally got to a place where he could still be strong in his passion and his ideas but also allow others to have their say for the greater good.

JB: In getting inside the head of the subject, the biographer discovers both the positive and the negatives of that subject. Was Fell—other than in the instances that we already have talked about—detrimental to his own ideology?

AP: Sometimes in the short run, yes, when he got into conflict with even close friends and allies because of his stubbornness, his unwillingness to compromise. George lost more than a few battles but ultimately won the war through sheer perseverance. He structured The Nature Conservancy in such a way that it was able to grow into what it is today, which is the world’s largest conservation organization. If he had given it up and taken an alternative way that others suggested as to how it should be structured, I’m not sure it would have survived. Richard Pough wasn’t into structure. He just wanted to do deals. And I think that if The Nature Conservancy had just wanted to do deals without any strong bones, it might not be in existence today, or it would look very different. So George, in sticking to his guns, sacrificed what might have been a long, storied career with The Nature Conservancy. But he left in place the infrastructure to make certain that what it was going to grow into was built on a rock-solid foundation.

Pretty much the same thing occurred with the Illinois Nature Preserves Commission. George fought hard to put in place a solid structure, but he also cultivated an equally strong culture. Over the course of the twenty years with the Nature Preserves Commission, he recruited exceptional people and spent a lot of time getting them up to speed and letting them know just how important they were to the organization. The structure and culture remained, even after George left. As testament to the strength of what George was able
to put into place, in spite of the struggle the state is having today in fully funding the Nature Preserves Commission, it’s still there. It’s still effective. It’s still doing its work.

JB: Arthur, you are now working as Chicago program director for the Gaylord and Dorothy Donnelley Foundation. Tell us a little about that.

AP: Mine has not been a straight-line career by any imagination. I spent many years as an actor in regional theatres around the country. I loved it, but at some point, I wanted to change gears. I’d always had a passion for nature and thought maybe I could write about it. I gave it a go and was fortunate that people wanted to publish my work. It was a happy accident, if you will. But through my writing I got to learn a lot more about conservation. For me, it was kind of a happy accident, too, that these two things—arts and conservation—are also what the Gaylord and Dorothy Donnelley Foundation supports. Through my work at the foundation, I feel exceptionally grateful that I get to help advance two causes that I deeply love.

The Fell biography is something I did on my own, but obviously it very much relates to some of the work that I do at the foundation. At the end of the day, George, you, me, all the conservation organizations the foundation supports—all of us want fundamentally the same things when it comes to land conservation. We want to protect the preserved areas that we can; we want to expand them to the degree that we can; we want to buffer them; we want to make a meaningful connection between them—all toward the goal of having a more sustainable network of vital lands for all the plants and animals that depend on them for their very lives, and, of course, for us, too. Not just for the joy and beauty they afford us, but also—if you really push it—for our survival on this planet. You know, the argument that always comes up from those who don’t understand this is, “So what if we don’t have spotted owls, is the world really going to end?”

JB: Aldo Leopold, whom you talk about in the biography, was a huge influence on George Fell. In *A Sand County Almanac*, posthumously published in 1949, Leopold explains just how thoughtless such a question is when he defines the Land Ethic. Like Fell, Leopold was pretty single minded as well.

AP: You do need a single-mindedness in these efforts. I don’t want to exaggerate, but they are, in a sense, herculean efforts. Almost all the prairie in Illinois was plowed up to grow corn and soybeans. It takes a lot of energy and determination to save what little remains in the face of much of the world saying, “What does it matter if we plow a couple of more acres? What does it matter if we lose a species?” To stand up and say that it does matter, that we’re going to fight for these things, is important.

JB: Arthur, we’ve talked about Fell’s origins in Illinois. It’s interesting, I think, to note that after Fell left the organization that he created in Washington, DC, he served as the Secretary of the Illinois chapter of The Nature Conservancy, part of a chapter system that he insisted would be vital to the survival of the Conservancy. You write in your epilogue of why the organizations he founded continue to thrive on a national level.

AP: It is important to point out that George is not solely responsible for everything that has happened in the development of The Nature Conservancy over its long history. Many other people have made vital contributions. Nonetheless, the infrastructure that he put in place was fundamental. He insisted on the chapter system when few thought that it was a good idea. Today, there is a chapter of the Conservancy in every state, which helped set the stage for jumping the pond, as it were. Over the past half century, the Conservancy has grown into an international organization, un-
derpinned by its strong chapter system and extensive membership base. In a related way, the strength of the Illinois Nature Areas Preservation Act, which established the first state system for protecting natural areas, provided the template for others to follow suit. Today, there are now nature preserve commissions in almost every state.

JB: Let’s shift a moment to talk about George’s academic career, which, as you point out, helped him to begin to understand nature as a professional. But you note that he wasn’t an outstanding scholar as an undergraduate at the University of Illinois, nor as a graduate student in ecology at the University of Michigan. Could you elaborate on what you conclude about his academic work? Did his temperament make him a bit unpopular with his professors? I didn’t get the impression that he was lacking in intelligence at all.

AP: Again, that’s another area where as a biographer you can go only so far in reading into the documentary evidence. There are many reasons that one does not do particularly well in undergraduate work. I hope that no one ever writes my biography and asks, “Really? This is all you managed to accomplish as an undergraduate?” It doesn’t follow that someone as accomplished as George Fell had to have been an outstanding student. It took him awhile to find his way. He had to get through both the University of Illinois and the University of Michigan and get through the conscientious objector years. And even then, he wasn’t sure exactly what it was that he wanted to do.

And this is where I think it is important to emphasize his partnership with Barbara. It wasn’t until he met his future wife that he finally found focus. I’m not exactly sure what that dynamic was. But the record is clear that until he met her, he was a little bit adrift. After he met her, he was laser-focused, and they were the perfect team. Barbara would argue with me on that. She said to me, “I never had anything to do with that. George was the genius. I never had anything to do with it.” But there is no denying that she was critical to his success. Theirs was a true partnership.

JB: And later on, George became a relatively astute investor in the market. Did he inherit some money from his father?

AP: No. Barbara was always adamant about that. What money they had they earned entirely on their own. But, yes, the few dollars that they did make, George invested wisely. As adept as he was at identifying lands of strategic value to buy, he was equally adept at identifying which stocks to invest in.

JB: Aside from investing, how did he make money?

AP: He had only one job that he was hired to do in an organization that he didn’t found. Soon after he was married, he was hired by the Soil Conservation Service but did not survive the probationary period. It wasn’t because he wasn’t capable. It’s just that he wasn’t sufficiently experienced in farming. Ultimately, the only way that he earned a little salary, after working for years for no pay, was through The Nature Conservancy and the Illinois Nature Preserves Commission. Even then, most of what he earned he plowed back into the organizations that he founded because the most im-
important thing for him was to get more land protected, to get more land protected, to get more land protected.

JB: But then he made very well informed decisions about investing.

AP: Yes. He did earn additional money through his investments. But what wealth the Fells accumulated was due as much to their being exceptionally frugal. They didn’t buy anything that they didn’t need. They never owned a new car. A used one was fine, especially since George performed all the maintenance himself. They preferred to go to Good Will rather than buy new clothes. In short, they felt that people buying too many things in general was indicative of the challenge of preserving natural areas. The more we are a commercial and consumer society, the less we are going to value the things that are important, such as natural areas. This was their conservation ethic. They didn’t just talk about it. They walked the talk in a way that many people would find challenging.

JB: Yes. You include a photograph of George in 1948 with a pre-war Plymouth. He was a good mechanic, and he fixed the seats so that they would lie flat so that he and Barbara could sleep on them in the car outside natural preserve areas in order not to have to spend money on a hotel.

AP: Yep. And before there was pre-packaged food, they ate baby food on their trips. They put a case of baby food in the trunk to avoid the cost of eating in restaurants when they were on the road.

JB: Arthur, is there anything you would like to add as we conclude this interview?

AP: Perhaps only this: in my opinion, the book fills a gap in our nation’s history of conservation. George deserves his place alongside the likes of Aldo Leopold, John Muir, and others. His contribution was that important. But what’s next? How do we build upon his legacy? Who is the next George Fell? Who’s going to give us the next big idea to take conservation in a new and exciting direction? After all, we can’t buy much more natural land, right? There just isn’t that much left, especially in Illinois. So what is the next thing that we need to do in order to protect the natural lands that we love? Might it be some creative interface between natural lands and working lands? The Nature Conservancy has been active on this front. What might that mean here in Illinois, where 75 percent of our land is farmland? Is there an opportunity to do farming in a more holistic way that will help support conservation values? Is that where conservation needs to go next?

JB: Your book, as I read it, is a contribution to starting a discussion of how we might find the next George Fell.

AP: I believe knowing our history is always a good practice for being on the lookout for what’s next, knowing that it’s going to take much the same kind of tenacity, of taking the long view and taking a few knocks. Perhaps one way of identifying the next wave of conservation is to look around and see who it is, who’s bumping and bruising a bit. Maybe that’s the individual to whom we need to pay more time and attention, to see where he or she is going to lead us.

Photo Credits:
Arthur Pearson photo: Susan Clark
George Fell at Bell Bowl Prairie, photo courtesy of Natural Land Institute.

James Balowe is Distinguished Professor Emeritus of English at Bradley University, and is Engagement Advisor at the Center for Humans and Nature. Since retiring from university teaching and administration, Jim has written a biography of Joy Morton and a monograph history of The Morton Arboretum.
The original forest in New England, New York, and Pennsylvania covered nearly 100 million acres. Four hundred years of civilization have left the following: 72 percent forests, 23 percent cleared for farms and pastures; 5 percent urbanized. Not so bad, you say, still some 70 million acres of trees left? Well, of the remaining forest, Lloyd Irland says in *The Northeast’s Changing Forest* that only about 5 million acres are preserved for wilderness—notably the Adirondack Forest Preserve, sections of the Green and White Mountains National Forests, and Baxter State Park.

But even that is not as good as it sounds. A much stricter definition of wilderness, e.g., as defined in the Wilderness Act of 1964—“Where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain”—increases our shame considerably. We’re down to 1.5 million acres, two-thirds of that in the Adirondacks.

And the rest of the woods? In private hands.

Those hands used to be working hands—gnarled, scarred, and rough. But now, increasingly, they are soft and grasping and disembodied, computerized, belonging to investment firms whose “work” is financial sleight of hand. And the situation is especially perilous in Maine, where ownership of the land seems to be changing from relatively benign to positively malignant.

When I fly over Maine, the trees seem ubiquitous, spreading forever, an endless resource. I see little breaks in the green at Portland, Bangor, and along the coast. Even driving through the more developed south, I’m amazed. Houses and lawns are surrounded by trees, and cleared fields are minuscule islands in the ocean of green. It’s hard to believe that less than one hundred years ago, almost all of Maine was logged or cleared for farms. Irland says, “It is difficult to imagine the horrific condition of significant areas of Northeastern forest just a century ago or less.”

Personally, I cringe, heart aching, every time I see trees cut down, for they have souls that have more value to us, both practically and spiritually, than we can know. Patiently, they supply shelter, oxygen, beauty, repose; stoically, they give up their lives, some to live on for a bit in the paper for our poems, the tissue for our noses; others grow back. But what they grow back into these days are woods, not forests: a little tame, utilitarian, beautiful, inspiring, and necessary, but not fearsome or profligate.

I love our woods, but when I walk through them, I can hear only faint echoes of the vast stands of birches, the sweep of fir and spruce and (especially) the great white pines of the past, Maine’s own version of the Ents of Middle Earth that once oversaw the land before humans turned them into houses and ships and furniture and war. Those pines, growing nearly two hundred feet high and living for as long as 450 years, were both the symbol of our greed and its possible redemption.

There’s something about the exploitation of natural resources that makes humans run amok. Is it that the resources seem free, that only energy and talent stand between servitude and great wealth, that the world is there for the picking? The Maine woods were no different. Neil Rolde in *The Interrupted Forest* refers to Hugh McCulloch, the U.S. Secretary of the Treasury in the mid-1800s: “In his memoirs, he makes this bald statement: “The wildest speculation that has ever prevailed in any part of the United States was in the timberlands of Maine.””

It’s not that greed is an ineluctable part of our nature. Some Native Americans didn’t appear to have it,
ish navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.

Having exhausted its sources in Europe, the British navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.

Having exhausted its sources in Europe, the British navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.

Having exhausted its sources in Europe, the British navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.

Having exhausted its sources in Europe, the British navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.

Having exhausted its sources in Europe, the British navy needed mainmasts for its ships, and the great white pines of Maine were perfect. The King’s men fanned out through the forests, claiming with the broad arrow mark every tree bigger than twenty-four inches in diameter. Mainers objected, mostly because they too wanted the lumber. (Oddly enough, Maine houses back then often featured boards twenty-three inches wide.) Not for the first time and certainly not for the last, Mainers said, “It’s our land even though we don’t own it.”

Land in America was endless, infinite. The Western way was to use it. And if Mainers were punished for their poaching, that was part of the Maine way of life. (Such entitlement was not an insignificant cause of the American Revolution.)

After independence, Massachusetts continued British traditions by awarding large parts of Maine to individuals: by lottery, by court grant in settlement of the State’s debts, by grant in lieu of pensions for veterans, by outright sale (William Bingham of Philadelphia bought 2 million acres, if you can imagine that). The idea was the same as the one behind the new Congress’s plans for the western frontier—populate and develop and not incidentally pay off the debt of the Revolutionary War. But in Maine the harsh climate and poor soil did not fare well in competition with the wonders and agricultural riches of the West, and Maine’s only real sustained industry for 150 years was logging.

The white pine is most wonderfully utile: long, straight, knot-free trunks perfect for boards; logs that can be stored for months without cracking like many hardwoods do; easy to find, easy to cut. No wonder it’s the state tree, and its cone and tassel the state “flower.” In many ways it founded the state.

By the turn of the eighteenth century King George was well into his plunder of the fabled white pines of Maine. Although many Mainers were Loyalists, especially those living in towns named York or Cumberland, England’s arrogance was generally hated. Particularly odious were the various laws regulating tree-cutting, culminating in the Broad Arrow Act of 1729.
Lumbermen started work in the woods in the late fall and stayed the whole winter. They lived in crude smoky camps, slept on cut boughs, and ate four huge meals a day—five thousand calories of beans and pork and dried cod. They cut trees with axes and hand saws, cleared paths down to the rivers, hauled up water to make the paths icy, skidded the logs along behind oxen, and piled them on the river bank or on the frozen ice of the river itself, waiting for the spring thaw. When the ice was out, they pushed the logs into the water, then danced on the immense booms with pike and peavey staff to herd the logs along, to free jams, to sort the logs for the mills. It was dangerous and dirty work. Many were killed or disfigured. They saw their families a few months of the year.

If this is romantic, it’s a peculiarly American kind: the company of men, the battle against nature, self-reliance, the peace and beauty of the forest (after the noisy day was done).

As he was for many things, Thoreau was both vector and cure for this disease. In The Maine Woods, he describes the primitive construction of the loggers’ houses, hardly distinguishable from the hovels for the oxen, and then has this to say: “They are very proper forest houses, the stems of the trees collected together and piled up around a man to keep out wind and rain, — made of living green logs, hanging with moss and lichen, and with the curls and fringes of the yellow birch bark, and dripping with resin, fresh and moist, and redolent of swampy odors, with that sort of vigor and perennialness even about them that toadstools suggest.”

Perhaps someday the white pine will reclaim its rightful place as king of the Maine woods, and the dilemma of the conservationist—living in some luxury in a forest or on the coast, worrying about CO2 yet plugging readily into an electrical grid powered by coal—might be assuaged.

As the white pine was being decimated, spruce logging began in the middle of the nineteenth century, and it wasn’t long before almost all species—fir, birch, larch, oak—were fair game. Bangor became the biggest lumber city in the world, and its front door, the Penobscot River, was the key to it all, the logs’ highway.

Logging museums and television specials romanticize the life of the nineteenth century Maine logger. It was not romantic. It was hard.

As he was for many things, Thoreau was both vector and cure for this disease. In The Maine Woods, he describes the primitive construction of the loggers’ houses, hardly distinguishable from the hovels for the oxen, and then has this to say: “They are very proper forest houses, the stems of the trees collected together and piled up around a man to keep out wind and rain, — made of living green logs, hanging with moss and lichen, and with the curls and fringes of the yellow birch bark, and dripping with resin, fresh and moist, and redolent of swampy odors, with that sort of vigor and perennialness even about them that toadstools suggest.”

Perhaps someday the white pine will reclaim its rightful place as king of the Maine woods, and the dilemma of the conservationist—living in some luxury in a forest or on the coast, worrying about CO2 yet plugging readily into an electrical grid powered by coal—might be assuaged.

As he was for many things, Thoreau was both vector and cure for this disease. In The Maine Woods, he describes the primitive construction of the loggers’ houses, hardly distinguishable from the hovels for the oxen, and then has this to say: “They are very proper forest houses, the stems of the trees collected together and piled up around a man to keep out wind and rain, — made of living green logs, hanging with moss and lichen, and with the curls and fringes of the yellow birch bark, and dripping with resin, fresh and moist, and redolent of swampy odors, with that sort of vigor and perennialness even about them that toadstools suggest.”

He’s almost love-struck by the springtime log drives: “It was easy to see that driving logs must be an exciting as well as arduous and dangerous business.”

But it’s the timber explorers, those solitary men scouting out new killing grounds, who get the really schizophrenic treatment. They are envied—“They work ever with a gun as well as an axe, let their beards west. White pine is now cultivated in plantations in the South, although the dictates of cash flow do not allow the magnificence of height. And in houses everywhere in New England, including my own house in Maine, there’s evidence of their past glory.

I like to think that the flooring of our second story is original pine planking recycled from another century. Visible from the first floor because there is no dropped ceiling, the planks appear to run continuously the length of the old part of the house, about thirty-five feet, although I suppose they could be shorter pieces nailed invisibly into the joists. And many of them are wide, as much as nineteen inches. The house was built as a cottage in 1924, not that old in the scheme of things, and the only fables here are the ones my family makes up, yet this link to the colonial past, if only through the workmanship, is comforting.

It’s not so comforting to know that white pine is fragile in a storm. Its fibers twist and bend until they can’t anymore, and the tree just explodes. There’s more than one example in the woods out back, from the vicious southeaster of 2008—the same storm that broke off a large branch of the white pine next to our house. It landed inches away, perhaps trying to get us back for owning the innards of one of its relatives. It would have every right.

Perhaps someday the white pine will reclaim its rightful place as king of the Maine woods, and the dilemma of the conservationist—living in some luxury in a forest or on the coast, worrying about CO2 yet plugging readily into an electrical grid powered by coal—might be assuaged.

As the white pine was being decimated, spruce logging began in the middle of the nineteenth century, and it wasn’t long before almost all species—fir, birch, larch, oak—were fair game. Bangor became the biggest lumber city in the world, and its front door, the Penobscot River, was the key to it all, the logs’ highway.

Logging museums and television specials romanticize the life of the nineteenth century Maine logger. It was not romantic. It was hard.
grow, and live without neighbors, not on an open plain but far within a wilderness”—and castigated—“The explorers and lumbermen generally are all hirelings, paid so much a day for their labor, and as such they have no more love for wild Nature than wood-sawyers have for forest.”

Ultimately, of course, he comes down on the side of the angels. “There is a higher law affecting our relations to pine as well as to men. A pine cut down, a dead pine, is no more a pine than a dead human carcass is a man.” Thoreau applied his American practicality to the romanticism of Wordsworth.

John S. Springer was another literary voice in the wilderness, publishing his book Forest Life and Forest Trees in 1851. But he was Thoreau’s dark side, or mirror image; indeed, the dark side of the transcendental movement. He could say that the forests “give to savage life the power of enchantment,” but then calculate rather coldly and happily that the trees would last only another fifty years, decreasing under the saw and axe by 10 percent a year. Who else but a nineteenth-century man could state: “The time is yet distant when its [the Penobscot River’s] banks shall exhibit the same advances in agricultural industry and wealth which now beautify, enrich and enliven the banks of the Kennebeck.”

Although Thoreau and Springer roamed the woods about the same time, it’s unknown whether they ever met or what debates they might have had—both men rough in their way, both men loners, one making a God of nature, the other a God of man.

That American dichotomy towards nature continues. In 2009 the Discovery Channel started airing episodes of American Loggers about the Pelletier family in Maine, promoting the show as follows: “In the far northeastern corner of the United States lies a vast primeval back-country known as the North Maine Woods. This breathtaking wilderness constitutes the single largest swath of unprotected forest north [sic] of the Mississippi—and serves as the setting for a century-old way of life that demands the utmost from men and machines who return year after year to reap nature’s bounty... They cut roads through the mud and snow, harvest timber with fearsome machines and drag monstrous bundles of wood to waiting trucks which hurtle down unpaved, ice-covered logging routes at breakneck speeds to mills throughout the U.S. and Canada. It’s a brutal and dangerous existence in which a twist of fate, one error in judgment, can yield horrific consequences: mangled equipment, injury, and even death.”

I’m of course struck by the contrast between “unprotected forest” and “reap nature’s bounty.” Will we never get over our Puritan impulses and contradictions?

Yet in those very “fearsome machines” might lie temporary salvation, at least until we figure out what we’re going to do when we finally grow up: the cut-to-length (CTL) system. Inside the CTL processor, one man and his computer control the cutter at the end of a long arm. The tree is felled, delimbed, cut into mill lengths, the hardwoods sorted for lumber, the conifers for chipping and pulping, and then piled up for the forwarder to bring to the roadside. Thus, three other, much cruder machines are replaced: the feller-buncher, the grapple-skidder, and the de-limber. The CTL system neatly selects trees and hardly damages the woods.

Yet it’s still a brutal business. My wife and I traveled for most of one day on the Golden Road between Millinocket and Quebec. It was a beautiful day in September, but the logs piled in clearings every few miles resembled nothing so much as the bone leavings of some ogre’s lunch. The only vehicles on the road besides our little blue Civic for the sixty miles to Greenville and Moosehead Lake were a few pickups and a couple of sedans—and, of course, the logging trucks, driving at highway speed on the dirt road, careening around corners with enough tilt, I swear, to spill a quarter million pounds of wood on top of us with just
one degree more of lean. At one point, a truck blasted out of a side road just in front of us without stopping; perhaps he saw us, correctly judged the angles, and wanted to give the flatlanders a thrill.

Should logging become a boutique business? Should trees be carefully grown, selected, and harvested with minimal impact? (Maybe we should mark every tree with a number as European farmers do for livestock.) There are attempts. Baxter State Park includes a Scientific Forest Management Area, as do many land trusts—for example, The Nature Conservancy, which purchased 185,000 acres along the St. John River in northernmost Maine and is managing the forest according to sustainability criteria.

When Mary Adams, a Maine conservation gadfly, heard of this, she reportedly said, “They’ll be practicing wine and cheese logging.” I hope so! Logs should become precious, each one treasured, at least until the world’s insatiable need for paper is curbed or cured by some wondrous replacement.

The need for paper has been, until recently, the force driving logging in Maine since the nineteenth century. Until then, paper was mostly made from rags and was relatively expensive. Then mechanical pulping of woods was developed, followed by chemical baths in sulfur solutions (which is why pulp mills stink). By the 1880s, the paper companies were kings of the woods, and this dominance extended all the way into the 1970s. By the mid-twentieth century, Maine was the United States’ leading paper producer (it is still number two today, after Wisconsin), and as late as 1960 the Great Northern paper mill in Millinocket was the largest in the world.

Because of their long fibers, spruce and fir are ideal for making paper, and the spruce and fir forests in Maine seemed endless. Logging was relentless; although Maine’s lumber production peaked in 1909, the paper companies continued to exploit the woods in ever more brutal ways. As late as the 1970s and 1980s, huge clear-cuts were common. The companies used herbicides and insecticides liberally to clear out the understory and combat the spruce budworm. The use of rivers for log drives wasn’t banned until 1976. The future of the woods was very much in doubt.

Yet the paper companies were stewards, inadvertently or not. They replanted almost everything they cut down (90 percent of pulp now comes from plantations and reforested areas). They constructed the thousands of miles of crude roads that allow access for the public. Most telling for Maine, they allowed hunting and fishing on their lands, and still largely do, through Maine North Woods, Inc., a cooperative that charges small fees for local use.

But at the end of the twentieth century, things started to change. Competition from the U.S. West and South, from Canada, from Asia and South America, and especially from Siberia decreased the investment value of the woods. In defense, Maine companies started to produce specialty papers, rekindle interest in hardwoods, and manufacture a host of diversified wood products, such as fences, cabinets, furniture, and dowels. For a few years Maine was the world’s leader in toothpick production. But these were small potatoes, not enough to keep the stock in the big paper companies going up, and the companies began selling their lands to the real estate investment trusts.

The drive to exploit natural resources—is it an inevitable part of being human? Must we bear these endless scenarios of discovery and exploitation, and the heartache and hard work and self-sacrificing efforts of the public to seek remedies? Who are the public? Can it be as simple as no child left inside? Until as many people as possible experience and love and cherish the natural world, the cycle will never be broken.

I wish no tree ever had to be cut. Or if it’s necessary, may it be only those suffering butt-rot or windthrow. This is totally unrealistic and naive, given our way of life and the importance of the paper industry.
to Maine.

Yet we can do our part. We were in Massachusetts for that fierce southeaster of 2008 and got an email from our neighbor, saying that the seventy-mile-per-hour winds had blown down several of our trees. At first I panicked, thinking she meant the perfect fir trees directly in our view of the bay and clinging to the edge of the bank. I called her on the phone and discovered the icons were safe, that other firs had fallen—one on the north caving in and now horizontal, the other on the south still mostly propped by its neighbors. A third tree, a large birch, was struck down across our leaching field in back.

By the time I got to Owls Head, things didn’t look so bad from the safety of the house. But up close the fallen trees were huge, and another fir now leaned more dramatically toward the house and would have to come down. It was a little alarming to see how shallow and small the root balls were, how such little horizontality produces such great verticality. I was just as happy to have been away, not listening to crashes, not waiting for the branch through the window, not worrying about the thinness of topsoil on this hard granite coast, not feeling guilty about squatting on this fragile system.

As usual I called Dave, the town’s tree contractor and all-around lawn service guy. He and his son delimbed and chunked up the fallen trees and hauled away the branches. I hauled the chunked logs to the area beside the garage, stacked them for drying, and split them over the next months.

None of my part involves motors or loud noises or callused hands. I tried borrowing a friend’s chainsaw to delimb the tree that had fallen on the leaching field. In preparation, I had read the instructions, oh, maybe nine or ten times, and eventually I got the beast going in spite of the uncertainties of the choke. In the course of ninety minutes, I stopped for gas and aching back (once each) and stalled out twice. I was happy to return the resistible force and leave real work to the experts.

But everyone can rejoice in the beauty of physical labor, the richness of the cycle of the carbon atom, and the scent and sight of new wood opened to the world. The rock-hard wood yields grudgingly to the expert’s saw, giving up its lovely, fruitful rings to the eye. Each log, heavy with water and life, strains the back thrice, lifting it to the wheelbarrow for transport, stacking it on the pile to dry, taking it off to split. At splitting time the axe reveals the rushing rivers of fibers inside; the scent of newly opened wood is as complex and fraught as the smell of fresh-baked bread. Then, in the depths of January, each corporeal log-body vanishes in an inferno of burned oxygen and escaping carbon and contentment around a stove.

Like all the stages of warming that a tree can give, from chopping to splitting to burning, nature also warms me. I look at a hill covered with trees. I walk the trails of our woods. I think about my place in the world. I think about trying to capture that place in words. I write the words that capture the look. I hope that the effort helps warm a cold world.

But in the final analysis, I don’t understand how the atoms of nature can do all this: pure energy by themselves, nothing really but imagination and belief; airy in leaves and in our lungs; soft and supple in the
as he went, leaving a few branch stumps as anchors for his belt. B pulled the fallen branches away and piled them for the chipper. At the top of the tree, A cut off the crown; B hauled the Christmas tree away. A attached ropes to the shorn top of the tree; B laid them out across the lawn. As A descended, he cut off the branch stumps close to the trunk, and at the tree’s base, he notched the tree to prepare its fall. A and B pulled on the ropes and the tree fell perfectly, between garden and house. With the big chain saw, A chunked up the tree and B organized the chunks into piles. It was all brutal, beautiful.

I forgot to ask them to take down the little dead spruce at the edge of the shore. On a cold clear day in January, I did it myself, with handsaw and axe. It was just a little tree—maybe twenty-five feet tall, six inches in diameter—but I struggled, unmotorized. Chopping a notch at the base took twenty minutes; delimbing another half-hour, with rests; and then sawing the trunk into stove lengths, the rest of the afternoon. What exertions for a few minutes of warmth in the wood stove. With what exertions, efficient expertise, and sheer and overwhelming power the big machines provide the necessities and luxuries of modern America.

In spite of sore limbs, it was pleasant to work in the cold, in the sweat of my body, on the edge of the bay. Back inside on my rocking chair, weary and gratified, I thought of Thoreau once more. “I stand in awe of my body,” he exclaimed on the slopes of Mt. Katahdin, “this matter to which I am bound has become so strange to me. I fear not spirits, ghosts, of which I am one, — that my body might, — but I fear bodies, I tremble to meet them. What is this Titan that has possession of me? Talk of mysteries! — Think of our life in nature, — daily to be shown matter, to come in contact with it, — rocks, trees, wind on our cheeks! the solid earth! the actual world! the common sense! Contact! Contact! Who are we? where are we?”

It seems to me that we have regressed in the effort to answer Thoreau’s questions and understand his ex-
clamation marks. He begs for more contact. With most technical advances we have less.

In the winter I try to heat the house mostly with the wood stove, keeping the thermostat as low as possible, channeling Thoreau if I can. The woodstove also offers a most un-Thoreauvian distractibility: I get up constantly to check the burn; open a vent or door for just a little more air; brush wood bits from the floor under the log rack and ash bits from the brick apron in front of the stove; haul more logs from the garage; check the stovetop thermometer, then the house’s, then the outside one, and feel virtuous. In fact, I’m doing anything to get me away from the balky sentence I’m trying to write, the lame phrase, the description that slithers around like Jello, the clichés that just will not leave the brain, and the impossibility of transitions between paragraphs.

Well, never mind the words. The very idea of the tree is holy, the most powerful symbol in the world. In Buddhism, Hinduism, Islam, Judaism, and Christianity, the tree is the being that unites heaven and earth. It’s the world tree, the tree of life, the tree of the knowledge of good and evil. Its symbolism and mythology are overwhelmingly complex, from the Garden of Eden to the Kabbalah to the Druids; and, of course, Christ was a carpenter and was crucified on a wooden cross, a tree like no other. What immensities do we lose when we forget the blessings of the tree?

In the rest of the woods, remnants of the old ways are everywhere: old foundations, pieces of bridge on river banks, rock wall fences, gentleman’s farms, logging roads, ruined root cellars. It was a hard way of life, and we’re grateful for our modern comforts and the agribusinesses in Iowa and the smelters in Idaho and the computer guys in Silicon Valley that supply them. But we need to stop now, go back there, and walk through the endless wild forests, if only to learn how to be closer to family and nature. We need the trees. Wilderness is nothing without them. Tundra, Saharan desert, the jagged wastes of mountains above the treeline—those are wildernesses of danger and cruelty. Our Maine wilderness is a revelation, not a condemnation. Even though old-growth forests are a dream, a museum of the imagination, they inspire us to reclaim the knowledge of good and evil. If the money boys get them all, then we’ll really see a desert.

Photo credits: Cynthia R. Dockrell

Jim Krosschell divides his life into three parts: growing up for twenty-nine years, working in science publishing for twenty-nine years, and now writing in Massachusetts and Maine. His essays are widely published; a collection of those Maine-themed has been published in One Man’s Maine (May 2017) by Green Writers Press. His book, Owls Head Revisited, was published in 2015 by North Country Press.
The ancient practice of geomancy holds promise as a surprisingly contemporary model for adjudicating humans’ relationship to nature. This is because, among other things, it presumes that a true union of humans with the natural world is not given but earned, practiced. The relationship between humans and nature consists of a dynamic, unpredictable process, which is irreducible to static founding assumptions, such as linear material causation. Normatively, this process relies neither upon a view of human rights over nature in deference to human specialness (as the Judeo-Christian tradition has been interpreted to advocate), nor upon the conviction of humans’ imbrications within nature on a continuum with other animals (as Romanticism feelingly insists). Instead, geomancy imagines humans’ relationship to nature to be essentially contractual. Geomancy involves complex, mutually complex, intuitions, obligations, and exchanges, the outcomes of which can go terribly wrong. Our habitation in the Anthropocene vividly brings home how relations among humans and the natural world can lead to alienation and estrangement as readily as to synergistic union. Because of the ways the Anthropocene has transformed earth from a system of potentially legible signs to an avalanche of ambiguous symptoms, I suggest, geomancy has been created anew.

Since the late fourteenth century, “geomancy” has been defined as the art of divination by means of signs derived from earth. To divine is to discover—whether by intuition, insight, or conjecture—those forms of knowledge which themselves proceed from the divine. It is a reciprocal art. We divine through the divine, in other words; divination incarnates us as momentary gods. Geomancy furthermore presumes an analogical relationship between the cosmic order and the human body, conceiving of the earth, in effect, as a body.¹

Traditional geomancers practiced divination by earthly signs to maintain human harmony with what was conceived as a unified cosmic order. They conventionally attended to the placement, arrangement, situation, qualities, and boundary properties of such earthly materials as water, trees, stones, hills, sun, and megalithic structures, the patterns of which could either be discerned to facilitate harmonious relations or disrupted at the risk of dire consequences. Perceiving local material forms and relationships as microcosmic reenactments of a divine macrocosmic scheme, geomancers sought to create equilibrium across a complex, sacralized network of human and non-human interactions. Of its many iterations, two traditions of geomancy have found particular resonance in the West: Chinese feng-shui, which aims to regulate the flow of energy through the location and position of objects, buildings, and borders; and Britain’s terrestrial geometry, which discerns in the alignment of ancient sites Meridional or “ley lines”—channels of energy claimed to correspond to ancient surveyors’ trackways.² Since geomancy’s popular resurgence in 1960s America, its meanings have expanded to encompass virtually any occult practice anchored in earth. But that expansion hasn’t emptied geomancy of meaning, as one might suspect. Quite to the contrary, geomancy’s reformation from the late 1980s and after shows the widening relevance of such discourses and practices to our rapidly changing planetary conditions, just as it exposes the growing limitations of Enlightenment tools to contend with them.

Geomancy entails an acute level of environmental reading that, quite apart from its sacred purpose,
War left in its wake a yawning ‘apocalypse gap’ that was readily filled, in political discourse, by environmental doomsday scenarios” such as nuclear winter and ozone-depletion.

At bottom, the new geomancy entails a crisis of knowing enacted through interpretations of geophysical space that are fueled by the simultaneous rise of system complexity, collective anxiety, and profound redistributions of authority; each of these components combines combustibly with the networked technologies of the digital information age. The new geomancy is the arena wherein fantastical truths and credible falsehoods interchangeably trade places. Yet the new geomancy rises above mere confirmation bias dressed up as epistemology because of its chronic uncertainty.

Does fracking cause earthquakes? Is the U.S. military modifying the ionosphere to make war with weather? Will psycho-pharmaceuticals in our water change our or other species’ DNA? Do genetically modified crops have unintended effects? Have we been killing bees with our lawn care products? The prolonged inability to adjudicate among the truths, falsehoods, speculations, and prognostications about earth and the biosphere erodes confidence in longstanding methods of proof, consigning us instead to private islands of veridiction. The new geomancy is best regarded as that structure of feeling that addresses itself to our planet’s ungraspably complex changes, wherein humans take a decisive step towards estrangement from our earthly roots.

I repurpose the term geomancy here as shorthand for the emergent epistemological paradigms and changed relations of definition that have evolved since the 1990s in the United States in response to three significant reconstellations of risk and their attendant forms of planetary awareness: the replacement of the Cold War’s binary global logic beginning in 1989 with a widely dispersed spectrum of potential harms hiding in plain site; the greater public consciousness of global warming, with its terrible revelation of the convergence of human and geological history; and the rise of the security state, particularly following 9/11, with its doctrine of preemption inscribed as a normative environmental power. As climate scientist Paul N. Edwards notes, “With the fall of the Berlin Wall in 1989 and the collapse of the Soviet Union in 1991, the Cold
and extreme weather to the catastrophic effects of profit-driven resource extractions and environmental accidents. Cumulatively, they form a larger system or symptomology—a profligate inventory of spills and leaks, breaches and eruptions, chills and hot spells, infestations and collapses that, as my somatic language is meant to suggest, symbolically reference earth itself as a jeopardized, unstable body—a wounded Gaia, to use the language of deep ecology. Earth has been bled of its anchorage, its shelter, morphing into a perpetually suspect interpretive site. Earth’s spatial ordering is no longer intimately but only structurally relational, while time’s linearity is re-imposed externally by thresholds of contamination that are either looming or passed.

This symptomology mandates new forms of divination that, like their predecessors, fuse the material and symbolic into a space of geomantic reading. If geomancy past meant divination by earthly signs, geomancy present means divination of earth through symptoms rather than signs; through a pathologized planetarity rather than a holistic cosmicity. The new geomancy proceeds by the anxious parsing of a transformed but still ritualized earthly space whose toponography of purity and pollution has been rendered as literal and actual as it is portentous and symbolic, even as it escapes sensory capture. This uncanny earth draws us into a disenchanted, risky symbiosis. The new geomancy begins with the disenchantment of earth—not in the familiar Cartesian sense used to justify its relentless instrumentalization, but in the freshly poignant sense of loss of an imagined purity; in the damage wrought against an ancient idea of home.

NOTES
2. Pennick, 66; 80-81.
CHN BOOKSHELF

A regular feature calling attention to important books and articles that CHN staff, board, and collaborating scholars are reading and recommend. Quot libros, quam breve tempus.


N. Klein, No is Not Enough: Resisting Trump’s Shock Politics and Winning the World We Need (Haymarket Books, 2017).

D. A. Kysar, Regulating from Nowhere: Environmental Law and the Search for Objectivity (Yale University Press, 2010).

M. S. Northcott, Place, Ecology and the Sacred: The Moral Geography of Sustainable Communities (Bloomsbury Press, 2015).


A. Tsing, H. Swanson, E. Gan, N. Bubandt, eds. Arts of Living on A Damaged Planet (University of Minnesota Press, 2017).
DEMOCRACY AND THE CLIMATE CRISIS

The heated U.S. 2016 presidential election is over, but the resulting political polarization has brought forth fresh concerns over democracy’s ability to heal this country’s many social, economic, and environmental ills. Worldwide, socio-economic and political orders are coming under more scrutiny; citizens are expressing greater discontent with the credibility of governmental leaders; and voters are increasingly dismissing the status quo and seeking new forms of governance. Additionally, there are real concerns about whether democracy as a system of government is fundamentally capable of addressing the very palpable climate crisis.

To date, democracy has seemingly failed in this arena; the Kyoto Treaty, the United Nations summit in Copenhagen, and the Paris Agreement are some of the most publicized political breakdowns.

Ideally, democracy expresses the will of a population. Perhaps, then, an essential question is whether the voting body of a democracy is willing to accept limitations on energy use and the other sacrifices that are required in order to mitigate the damage of climate change. Can democracy help “the people” overcome the impulse of instant self-gratification and set aside adversarial relationships in order to constitutionalize environmental protection and promote global justice? Is our system of democracy underequipped to deal with a problem of such global scope and serious consequences, or is there hope that, with some reflective imagination, democracy may overcome one of the gravest threats facing humanity?

Political institutions are in a critical moment with respect to climate change, and though the stakes are high, there is an opportunity to reimagine our roles as deeply engaged and informed citizenry in a deliberative democracy. The Center for Humans and Nature has joined this conversation on reimagining democratic governance in the face of climate change by asking the question, “Can democracy in crisis deal with the climate crisis?” As part of this series, the Center invited diverse contributors from across disciplines to share their ideas on the connections between rejuvenating the democratic process and addressing the climate crisis. Contributors include Bill McKibben, Vandana Shiva, Hans Joachim Schellnhuber, Benjamin Barber, Daniel Aldana Cohen, Robyn Eckersley, Michael Menser, Carol Gould, and Peter G. Brown.

In their essay responses, these contributors addressed the following issues at the heart of this question:

• The ever-increasing political power of the financial elite (McKibben, Eckersley, Cohen, Schellnhuber): Equal representation is key to a healthy democracy, but as Bill McKibben, founder of 350.org, explains in his piece “Currencies of Movement Are the Key,” we have known about climate change since the 1980s, and yet all rational approaches have been blocked, dismissed, or otherwise impeded by a small group of special interest lobbyists who control a disproportionate amount of wealth and influence.

• Expanding democracy and constitutionalizing environmental policy (Brown, Shiva, Menser, Barber): If democracy is to solve the climate crisis, representation and the right
intricately embedded within the natural world and subject to Earth’s very real ecological constraints. This very fact demands that we live our everyday lives and plan our future world governance in a way that shifts our current socio-economic and political trajectory toward a path that values the well-being of the whole community of life. The question then becomes, is democracy nimble enough to help us move toward a more interconnected and sustainable worldview?

Dive deeper into the question “Can democracy in crisis deal with the climate crisis?” by exploring the diverse approaches our contributors take, then join the conversation by sharing a contribution of your own.

The Center’s mission is to explore and promote our human responsibilities to nature—the whole community of life.1 And part of this responsibility is to reimagine the energy path we are currently on that is creating an untenable lifestyle for us all. This process of reimagining is essential because our culture currently rests upon several flawed premises: that humans are separate from nature; that nature is merely a raw material for human use; and that it is acceptable and “natural” for humans to exert unlimited control over nature. Such presumptions result in a social self-understanding derived largely from consumption, competition, and self-interest. In addition, the typical solutions offered by political institutions to correct our social and ecological challenges are myopic, reductionistic, and driven by short-term thinking.

Now more than ever, we as a social species require new and imaginative approaches to sustainability, progress, growth, wealth, governance, and the common good. Our human economies and communities are utterly dependent upon and to be heard during legislative processes should be extended to all people who will be affected, regardless of their nation. Climate change is a global issue, yet those who are most adversely affected are consistently left out of the debate and forced to bear the brunt of wasteful, consumption-based economies.

The contradiction between liberal economic philosophy and the reality of Earth’s limits (Brown): The concept that one should be free to act in whatever manner she sees fit so long as it does not directly harm another has come into conflict with modern understandings of our global ecosystem. We must come to grips with Earth’s actual capacity to nurture life and to sustain its ecological and evolutionary processes. In an extraction- and waste-based economy, every act of consumption necessarily impacts every other member of the global community and Earth’s systems at large.

Kevin Clark is Web Associate for Minding Nature, Webmaster for the Center for Humans and Nature, and he also works with the University of Illinois Extension Office.

Anja Claus is Senior Editor of Minding Nature, Curator of the Center for Humans and Nature’s Curation series, and Editor of the Center’s weekly newsletter.

NOTES:
Wildness brings together esteemed authors from a variety of landscapes, geographies, cultures, and backgrounds to share their stories about the interdependence of everyday human lifeways and wildness, revealing the many ways in which human communities can nurture, adapt to, and thrive alongside their wild nonhuman kin. With this book, we gain insight into what wildness is and could be, as well as how it might be recovered in our lives—and with it, how we might unearth a more profound, wilder understanding of what it means to be human.

“This amazing amalgam goes at the issue of nature, wildness, and our relationships to it via personal story, lyrical verse, and reflection. It is a return to something that works most effectively—a diversity of noteworthy voices tuned to a single issue—but that is so diverse in its assemblage and affect as to be totally unique and useful. Comprehensive, inclusive, and evocative, comfortable enough to be considered literature but groundbreaking enough to enter into discussions of policy and planning for the future, Wildness is storytelling and word-singing at its best. It is also a book I simply (and badly) want on my bookshelf to pull down and read words that flow like water but have the lasting impact of fire.”

— J. Drew Lanham, author of The Home Place: Memoirs of a Colored Man’s Love Affair with Nature

Gavin Van Horn is the director of Cultures of Conservation for the Center for Humans and Nature, a nonprofit organization that focuses on and promotes conservation ethics. John Hausdoerffer is a fellow for the Center for Humans and Nature as well as the executive director of the Center for Environment & Sustainability at Western State Colorado University, where he is professor of environmental sustainability and philosophy.