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WE ARE AT TWO WITH NATURE

I believe one of the reasons our lives are so difficult today is because of the separation from the rest of the natural world that we’ve insisted on having, our insistence on the primacy of human life. Human history, you know, is but one dimension of natural history. It’s not the other way around.

—Barry Lopez

Woody Allen’s film character, the quintessential big city dweller, indoorsman, and nervous meta-physician, remarks somewhere, “I am at two with nature.” By this he means he is not against the natural world per se but does feel apart, anxious, ambivalent, and not at home in it. When he is in nature, he is not of it.

I myself have the same uncomfortable attitude toward biotechnology. I am at two with the awe-inspiring power and accomplishments of science and technology that intrude upon and seek to control life. I would like to be able to say a plague on its house. But that is neither a practicable nor a responsible position to take, thanks precisely to the fact that plagues and other sufferings are real, not metaphorical, and can be eased with a prudent use of biotechnology. It’s the complicated things that we need to think about here.

Being at two with biotechnology requires the hubris (audacity, self-assurance) of a creator and the humility of a creature, while living in a narrow place between power and restraint. The point toward which I gesture in this essay is that to exercise power without restraint is weakness; to master the will to mastery itself is the true mark of humanity. That is the kind of humanity that nature requires of us all, especially now.

REFABRICATING NATURE

In my youth, I lived in the shadow of nuclear physics and nuclear weapons. Everyone did. The prime imperative then was to forbear in the face of a technology that would bring cosmic forces within the atmosphere of the planet, thereby destroying most life on Earth. Now I live under another technological challenge to planetary life posed by genetic engineering and synthetic biology. Everyone does. Biotechnology has a lower profile in the public mind than nuclear weapons. Yet it too forces us to wrestle with unthinkable thoughts. The challenge of our time is not to forbear entirely but to prudently limit a biological technology that would transform much of the evolved life on Earth into an artifact of human will. Today, systems biology and biotechnology have the wherewithal to redesign and reverse-engineer biological systems using techniques of molecular manipulation.

The creator perfects and redefines necessity; the creature creatively adapts to necessity and achieves a modus vivendi with it.

Even as human economies powered by fossil carbon energy are altering the ecosystemic and climatological parameters of life at a planetary scale, two new forms of genomic engineering have arisen in the last few years that mark a watershed in the deliberate reshaping of life at the molecular level. These are “genomic editing” and “gene drives.” The fossil carbon era has shown that humans are capable of refabricating nature—recreating its assembly, resilience, and affordances—on a planetary scale. Gene editing and gene drives will take deliberate refabrication into the cell, the basic unit of life.

Genomic editing uses a protein called CRISPR-Cas9 that can target and alter areas of DNA in
the nucleus of cells. It goes beyond what used to be called “genetic engineering” and is considerably more precise, effective, and economical than previous modes of gene splicing, using recombinant DNA techniques and other means first developed in the 1970s. It may greatly enhance understanding of basic biological mechanisms, and it will open new doors to many practical applications on plants and non-human animals, and even in human medicine as well. In 2018 a Chinese researcher used CRISPR to modify the DNA of two human embryos, which were then implanted and carried to term. Currently in many other countries, including the United States, genetically modified cells are being introduced into patients in hopes of treating genetic disease.

For their part, gene drives extend human fabrication into the intergenerational domain of biological evolution, substituting human intentional selection for natural selection. What would Darwin say about this development? Somehow I doubt that he would approve of human beings in a hurry giving evolution’s tangled bank a buzz cut. Gene drives work by encoding the CRISPR mechanism to alter a particular DNA sequence in the reproductive cells of an organism. In this way, the probability that certain traits will in fact be replicated by offspring and continue to be propagated in subsequent generations can be greatly increased. Thanks to gene drives, inherited traits dominant in a species will not be the result of Mendelian probabilities or environmental adaptation; human drivers and editors will select them. Gene drives are not feasible in human beings or many genomically complex species, although one should never say never. But gene drives will have applications in simpler plants and animals. Proof of concept research with gene drives has recently been published with yeast, fruit flies, and two species of mosquito.

Homo sapiens has been probing the secrets of life through the domestication of plants and animals for many thousands of years, but today human beings stand poised to fabricate living entities that neither natural evolution nor human husbandry have ever produced. Thus we stand at a historical moment when we must face the tension between two facets of our humanness.

To a degree of complexity and scale not exhibited in many other resourceful, adaptive species, human beings are both creators and creatures. The creator perfects and redefines necessity; the creature creatively adapts to necessity and achieves a modus vivendi with it. Human beings are both because we do both. We clearly do have the architectonic ability and the hubris to refabricate the world. But our communal, creaturely mode of being human offsets that by relying instead on humility to assist the world in making itself whole again. The heart and mind of the human creator say that we should see ourselves as steadfast members of the biotic community, accepting and accommodating what evolutionary natural selection has bequeathed to us, warts and all. The heart and mind of the human creator say that we should see ourselves as sovereign over life, fashioning enhanced forms of synthetic life and genetically driving evolution in better ways through anthropogenic selection.

In the age of biotechnology and biopower, our creative technological action reveals the bold pride and intelligence of hubris, but not always the balanced wisdom of humility. Humans are in the driver’s seat when it comes to nature but are driving without brakes. A primary question of our time, related to the multiple planetary crises we face, is whether our creaturely inclinations and mentality can rein in our creative quest for perfection and mastery.

A primary question of our time, related to the multiple planetary crises we face, is whether our creaturely inclinations and mentality can rein in our creative quest for perfection and mastery.

THE MOLECULAR GAZE

A large part of the problem is that “technology” is understood as physical and biochemical instrumentality, machinery, and apparatus rather than a mode of technical knowledge containing its own distinctive orientation toward the world.
Technology is a structure of interrelated ways of thinking and acting: ways of thinking about reality, nature, and other people, and cognate ways of interacting with nature and with other people. A technology is a complex of modes of production and relations of production. It is also a structure and a culture of fabrication. It marshals thought and action in the service of power, in the service of refashioning the given in accordance with human will and desire.

The trouble with biotechnology is not limited to risk of accident, unintended consequences, or the concern that biotechnology will be misused by malign agents, although most of the public discussion focuses on these concerns. At a deeper level, however, the problem with biotechnology (or any technology, such as Artificial Intelligence, nanotechnologies, or smart phones) grows out of the suspicion—I would call it an insight—that institutionalized science and technology innovation has a logic and agency of its own. Not to put too fine a point on it, science and technology are not best understood as things we use or abuse, they are, rather, powers that use—or abuse—us.

The question of how much and in what ways we should control the natural world is not finally separable from the question of how much and in what ways we should control the human world. A global bioeconomy is being built rapidly; the normative, ethical work of governing it responsibly proceeds slowly.

Technology engages in cultural worldmaking that has natural consequences. As biopower and biotechnology shape our imagination of self and world, they create a worldview within which humanness is defined and what is good about being human is characterized. The perceiving or understanding involved here is active, not passive; it does not simply reflect how individuals think and feel beforehand but constitutes the thoughts it is possible to think and the feelings it is possible for virtually everyone to experience.

Moreover, the specialized terminology and jargon of science tends to colonize ordinary language and to shape common thought. Writing about the context of evolutionary biology, Gillian Beer notes how the explanatory formulations in a theory like natural selection seduce with metaphor the sensibility and imagination of popular culture: “the unused, or uncontrolled element in metaphors such as ‘the struggle for existence’ take on a life of their own.” Another good example of this careless narrative is the title of a recent book on the relationship between humans and mosquitoes, in which the smaller creatures are demonized as “our deadliest predator.”

In sum, biotechnology—and the biopower it confers—operates biologically on many levels and scales, but it also exerts itself culturally by subtly altering both what we think is proper and what we desire. It reconstitutes our relationship to the natural world, but also to our own humanness. Without nature as a measure, respect for evolved forms or natural wholes in life has no moral foothold; everything is seen as decomposable and fungible bits of DNA. This is a new way of seeing life and hence a new way of seeing the relationship between human creativity and nature. Wendell Berry, quoted above, perceived the implications of this and called for “propriety” as I am evoking humility.

The term “biotechnology” was coined in 1943 by the Royal Swedish Academy of Engineering Sciences to designate various ways of pursuing biological solutions to wartime food, energy, and pharmacological shortages. Its first director, Edy Velander, proposed the name bioteknik to describe “applications which arise while one is learning to influence biological processes scientifically and exploit them technologically in an industrially organized activity.” In the domain of bioteknik, nature, or the natural, is not a set point from which deviations can be measured and condemned. The Aristotelian concept of natural form that had for centuries provided a standard of deviation and a point of return is rejected. Historian Nikolas Rose refers to this way of seeing as the “molecular gaze” in his acute book, The Politics of Life Itself:

It is now at the molecular level that human life is understood, at the molecular level that its processes can be anatomized, and at
the molecular level that life can now be engineered.... Molecularization strips tissues, proteins, molecules, and drugs of their specific affinities—to a disease, to an organ, to an individual, to a species—and enables them to be regarded, in many respects, as manipulatable and transferable elements or units, which can be delocalized—moved from place to place, from organism to organism, from disease to disease, from person to person.14

The route is short from the molecular gaze on life to the cultural valorization of creative refabrication and improvement as a privileged aspect of humanness. Our views of the true being of nature and life (the nature of the natural) inform our understanding of ethical responsibility and limits.15 Improvement and progress become our watchwords and our duty. Corporate advertisements have admonished Americans to achieve “Better living through chemistry.” The molecular gaze provides a warrant for this because it strips from living form and metabolism any inherent solidity or depth and thereby removes something that might be called a “preservation necessity” that demands respect for the integrity of what is alive.

Having no necessity attached to its evolved form and function leaves life morally available as a field for our manipulation. Today, the rapid growth of technological capability is outstripping the clarity of its goals, effects, and values. We know more about how to alter genomes than we know about what precisely we are doing when we do so, or why we are doing it, aside from the sheer quest to prove that we can. “We are learning to know,” Wendell Berry dryly observes, “precisely the location of our genes, but significant numbers of us don’t know the whereabouts of our children.”16

By contrast, the path of rejecting the molecular gaze in favor of a holistic, relational ontology leads toward the valorization of creaturely adaptation and accommodation. I’m not sure which comes first, but I am convinced that how we think and how we live inform one another. In its quest for knowledge, creaturely accommodation does not seek to stand detached from embedded, lived experience within the material world, it embraces its own embeddedness. Natural being with its inherent solidity both enables us and sets limits on what human beings can and should do. Nature calls for respect and accommodation or adjustment, not re-creation and re-engineering. Philosophers Hubert Dreyfus and Charles Taylor express a creaturely perspective in just these terms:

If we return to our most basic, primordial way of being in the world, when we are led to respond to the things in it as affordances, we understand ourselves as at grips with a world that aids us and at the same time sets limits on what we can do. We have to adopt the right stance to it; else we will suffer frustration or worse. The things that are showing up for us as obstacles, supports, facilitators, in short as affordances, have as it were an ontic solidity and depth. They set boundary conditions on our activities. They have what philosophy has come to call their “nature,” which we have to respect and adjust ourselves to.17

There is an inconsistency between the positive ecological values that the use of biotechnology is being asked to serve and the mindset that this same biotechnology promulgates within the culture, which undermines the comprehension, even the very articulation, of those ecological values. We should look askance at anything that undermines the perspicacity and humility fitting for a fallible being, or that undermines a willingness (and intelligence) to set limits on our own behavior. We should honor human creativity and innovation but avoid embracing them for their own sakes.

To be sure, the quest to exercise creative sovereignty over the community of life is not an illicit one simply because it sometimes fails or loses its bearings. Eco-modernist or eco-pragmatist thinkers are not wrong to turn to ethically motivated uses of biotechnology in the future as a corrective for the ecological rapacity of the fossil carbon era.18 This can include the use of gene drives and its successor techniques to improve on evolution by fabricating species with less harmful traits, like becoming resistant to malarial or dengue fever transmission, or with more advantageous ones,
like an increased ability to absorb carbon in the oceans or atmosphere or the enhancement of photosynthesis.

*We should honor human creativity and innovation but avoid embracing them for their own sakes.*

Yet the bifocal reality of the human creature armed with creative power remains. How can we refabricate nature selectively and judiciously without setting off a more wholesale cultural legitimation of technological mastery? This seems beyond our grasp. Environmental historian Ben Minteer also sees in the genomic engineering impulse an expression of human arrogance and the will to power. He worries that it will reinforce that very attitude just at a time when we need instead to cultivate its opposite: a stronger sense of limits and humility. Genetic modification in the wild, he writes, “is in many ways a refusal to accept our moral and technological limits in nature.... We are a wickedly smart species, and occasionally a heroic and even exceptional one. But we are a species that often becomes mesmerized by its own power.” To this I would only add that the mesmerization in question is not a short trance but a long-lasting trace in the moral imagination.

**SOLIDARITY WITH THE MOSQUITO**

The tension between the posture of creative design control and creaturely membership in a shared community of diverse, evolved life comes into play quite clearly in debates concerning the release of genetically modified organisms into the wild. Wary of known and unknown unknowns, scientific field research on genetic modification and “enhancement” of domesticated plants and animals has tried to set up and maintain containment measures. Even this has not always been foolproof—stray GM pollen has gone into the wind, GM seeds have fallen by the roadside from passing trucks—for genes, we now know, are remarkably nomadic, agentic, and hard to contain. But gene drive technology opens the ethical Pandora’s box here because their entire point is deliberate environmental release. Their *raison d’être* is to pick up the evolutionary pace, and once out of the gate the runners cannot be recalled. In the end, the desired effects in the target species’ population may or may not take hold, but that is out of the *bioteknik* creators’ hands. To paraphrase Tom Lehrer, gene drivers make the rockets go up but don’t take responsibility for where they come down.

*There is an inconsistency between the positive ecological values that the use of biotechnology is being asked to serve and the mindset that this same biotechnology promulgates within the culture...*

Doubtless, with genetic modification of mosquitoes (to break the life cycle of microorganisms that cause serious human disease—malaria, dengue fever, yellow fever, Zika) or rodents (to control Lyme disease or the ecologically destructive effects of non-native or displaced species), significant personal, social, and ecosystemic benefit can be achieved. So what’s the catch? The downside of hubris and the upside of humility. Natural selection and traditional animal and plant breeding by humans change species, of course, but very slowly, by trial and error. Unfortunately, our neoliberal eye-goggles blind us to the fact that sometimes precaution, with its inefficiency, can be our friend. Other methods to cope with the disease risks that gene drives might address—such as human behavioral change to lessen exposure to insect bites and changes in land use laws and planning to preserve and diversify habitat to reduce human contact with species that transmit zoonotic disease—require more community engagement and present fewer opportunities for monetization. Who was the last CEO to instruct plant managers to slow assembly lines down? How long has it been since those who praise small and slow have been taken seriously by policymakers? By contrast, gene drives are a kind
of unnatural selection that operates rapidly and could make big mistakes.

The stakes are high and if genes are to be driven, there are serious reasons to set limits, to create strict accountability, to use braking systems put in place by prudent public policy and oversight, and to look both ways. Individual mosquitoes are unlikely ever to be seen as important, particularly those who feed on human blood. Males never do, and as a matter of fact, some female mosquitoes don’t either; like Toxorhynchites brevipalpis, the drinker of honeydew, they prefer plant nectar. Only a few species within two mosquito Genera, Aedes and Anopheles (An gambiae for malaria), cause trouble. Mosquitoes have lived on Earth for 100 million years, far longer than we have. Their pestiferous behavior influences the behavior of animals in some ways that are functional for the ecosystems they co-inhabit. Without mosquitoes, ecological functioning to which they had contributed would change. And it is not merely the good things mosquitoes do that we don’t see, it’s also the other players in the drama of human illness and suffering. Extirpate the Ae aegypti or An gambiae, and human health would improve in the short run. But that is a temporary expedient. In the long run, it is the various viruses and malarial parasites of the genus Plasmodium that we must reckon with. These microscopic ones are resourceful foes. In the long run, viruses now carried by mosquitoes to humans may come to be carried by something else. Gene drive away every deer, mouse, and tick, and our victory over Lyme disease would be pyrrhic.

In ecology there is almost never only one problem, one cause, or one solution. Life—both metaphorically and biologically—is not that simple. When humans intervene in natural systems, we can never do just one thing. We almost always think we can, and then find out we have triggered other things with unforeseen results.

The use of biotechnology is too powerful and too far-reaching in its consequences to be left up to corporate decisionmakers, the profit motive, and the unregulated free marketplace alone. As democratic citizens, we must rise to the occasion of governing this new technology. We should have a strong public health consciousness, to be sure, but we also should have an ecological conscience. We must be at two with biotechnology. We need to embrace the virtues of prudence, humility, and an abiding interest in the common good of all life.

CIVIC GOVERNING OF BIOTECHNOLOGY

Reflections such as these inevitably lead to the annals of ecological governance where we find that it is inextricably tied to the governance of science and technology. In closing, I turn to a few aspects of governance that will set limits, apply brakes, and require accountability in the context of a rapidly emerging global economy of biopower. An international and interdisciplinary field known as responsible research and innovation in science and technology (RRI) is emerging in political science and in science, technology, and society studies. What mix of hubris and humility does RRI governance in the domain of genomic and ecological biotechnology demand?

Precisely how extensively—and in what ways—technology transfer will happen with genomic editing and gene drives remains to be seen. Nonetheless, there are several ethical questions about the responsible governance of that larger system of access and use that need to be anticipated and discussed even at this early stage. Actions taken now still have the chance of influencing the shape of the subsequent commercial roll out of biotechnology and the safeguards and ethical values built into its use.

In general, there are two main approaches to science and technology governance—the “command and control” regime and the “commercial market” regime. A command and control regime is characterized by the fact that responsible innovation is defined by legal authority and professional expertise. In a command and control regime, scientific innovation is directed by agencies and ministries sometimes acting directly through explicit law and regulation, sometimes indirectly through the influence of the governmental funding it provides to universities and technology development companies. A market regime is characterized
by the fact that responsible innovation is handled in a way that socializes the consumption of an innovative technology but privatizes ownership of its production. In it, innovations are produced and distributed through market mechanisms based on commercial property rights and patents. In this arrangement the role of any single control agent, whether individual or collective, is greatly reduced. Market governance reflects and is made possible by the collective and institutional nature of scientific and technological innovation.

I do not think expert command and control governance will suffice for biotechnology due to the characteristics of the technology itself, such as the relative ease and affordability of its manufacture, the decentralized and dispersed conditions of its environmental deployment, and the international, cross-border complexities of its command and control requirements. As a teenager I had a simple chemistry set in the basement and could create a small piece of synthetic rubber in a beaker; within a decade my young grandson will have genome editing equipment and the requisite inexpensive chemicals at his disposal, if he is so inclined.

Command and control and market governance of technology are too strongly institutionalized within developed nation states to be supplanted by civic deliberative governance, but they can be supplemented by it to good effect. As people begin to link biotechnology, health, and ecology, it becomes more apparent that the new biotechnology can hold both exciting benefits and sobering harms for some of the most serious existential challenges of our time. This may create what might be called a deliberative democratic opening in our politics, probably at the local level first but eventually at all levels.

To walk through that opening, to take advantage of this opportunity in biotechnology governance, we will need to recognize that the scientific enterprise itself, as well as its public governance, is a particular kind of social ecology made up of individuals and institutions that make a technology possible through their financial resources, expertise, and normative acceptance, often in the form of consumer demand. Moreover, biotechnology governance will require a more ecological and relational understanding of the virtues and practices of citizenship, for it is ultimately citizenship that provides the overarching orientation toward the common good binding science, commercial stakeholders, and private beneficiaries of the extended human mastery that the technology provides. The key to such civic activation is transformational leadership voices articulated in new forums and emerging from the crucible of social movements to be articulated in new forums, untrolled except by the force of the better argument. If such a discursive democratic citizenship could be unleashed—as it has been several times in American history—it would hammer out the terms of a new social contract between creator and creature that would be at two with biotechnology and at one with nature.

A deliberative democratic opening exists because, at least in the developed democracies of the world, governance is not completely professionalized and formalized, although the public administration of the state is clearly one important dimension of it. Civic governance creates roles and forums for many
parties and organizations from the civil society, the private sector, and the various expert groups who have experience and expertise in the molecular science behind biotechnology and the ecological systems it will be used to modify. Civic governance also involves a dynamic of evaluation and legitimation, beyond technical scientific validation and economic return on investment. This necessary work of evaluation and legitimation will draw in citizens who are engaged, informed, and motivated sufficiently to contribute to technology governance if they are given the appropriate opportunities and forums for doing so. The question is what kind of conversation should we have to determine the terms and scope of the ethical permission society gives for the use of biotechnology and biopower?

Finally, it is not simply passive engagement or being instructed by experts, but active deliberative contestation that is the goal. Precisely because there is so much predictive uncertainty concerning risks and benefits at the frontiers of biotechnology, many voices must be heard and many value concepts and perspectives must be persuasively and capably argued for, not simply asserted. Also the setting in which democratic deliberation takes place must be conducive to active civic learning. The reason to call for public engagement is not simply to mollify and reassure the public that the technology is in good hands. Rather, it is to educate and empower citizens to gain an understanding of the biotechnology applications under consideration that is substantive and critical enough to express evaluative standards, if not to work out more concrete policy regulations. This is no different from what is needed in discussions of environmental policy, and in both cases, it has been and can be achieved in inclusive ways. Ecological democratic citizens must also be historically and ethically informed citizens of a technological society. Not science per se, but the social, legal, and ethical implications of science and technology are the focal point of citizen conversation and debate in a regime of civic RRI governance.

FELLOW CREATURES, FELLOW CITIZENS
In a recent interview, naturalist and author Barry Lopez touched upon one important facet of the practice of ecological relationality and citizenship to which I am appealing. “Whenever I speak in public,” Lopez said, “I begin by stipulating, with a modulated voice, that things are way worse than we imagine.” He continued:

And then the second part of the talk is an evocation of the healing that is necessary and possible, a gradual elevation of the human spirit. It’s about the mobilization that is needed and which is within our reach. Then people know you’ve spoken truthfully, and you have evoked in each person a desire to help, to take care of their families, to have self-regard.

Are we creators or creatures? Are we beings in control of the world, or beings who prosper by accommodating themselves to webs of symbiotic interdependencies? The interplay of perfecting and accommodating is not unique to human beings—perhaps it characterizes all forms of life on Earth—but with humans these modes of being are distinctive, and our technology greatly expands their scale and effects. Are we creators or creatures, and if both, how can we achieve the balance between them that might be called humility? That at last might be accurately called humanity.

ACKNOWLEDGEMENTS
Many of the ideas discussed in this essay have benefited greatly from conversations with numerous participants in a project on “How Should the Public Learn?—Reconstructing Common Purpose and Civic Innovation for a Democracy in Crisis” now underway at The Hastings Center, with support from the John S. and James L. Knight Foundation.

NOTES

16. Berry, Life is A Miracle, 33.
24. This is a very general typology, but it applies to science governance and policy, as René von Schomberg has recently shown, and it brings out some viewpoints not always explicitly discussed in ethical discussions of biotechnology. See R. von Schomberg, “A Vision of Responsible Innovation,” in R. Owen, J. Bessant, and M. Heintz, eds. Responsible Innovation: Managing the Responsible Emergence of Science and Innovation in Society (London: John Wiley, 2013), 51-74.
31. Quoted in Bahnson, 8.
The Humboldt Connection between Nature and American Art

ELEANOR JONES HARVEY

An exhibition entitled *Alexander von Humboldt and the United States: Art, Nature, and Culture* will be shown at the Smithsonian American Art Museum located at 8th & F Streets NW in Washington, DC, from March 20, 2020, to August 16, 2020. (For further information visit www.americanart.si.edu). This exhibition places American art squarely in the center of a conversation on Humboldt’s lasting influence on the way we think about our relationship to our environment. Humboldt’s quest to understand the universe—his concern for climate change, his taxonomic curiosity centered on New World species of flora and fauna, and his belief that the arts were as important as the sciences for conveying the resultant sense of wonder in the interlocking aspects of our planet—makes this a project evocative of how art illuminates some of the issues central to our relationship with nature and our stewardship of this planet.
WHY HUMBOLDT?

Who was Alexander von Humboldt? Why and how did his life affect the United States to such a great extent? Despite the enormity of his influence during the nineteenth century, Humboldt’s name and reputation faded in the United States after his death in 1859. Many of his new ideas simply became an accepted part of what we know about this planet; others were superseded by his colleagues and successors. However, between the 1820s and 1850s, he had become one of the best known and widely admired public figures in the world. He lived into his ninetieth year, traveled on four continents, and wrote more than thirty-six books and twenty-five thousand letters to a network of correspondents around the globe. He had an infectious personality and boundless curiosity, surrounded himself with some of the leading minds of his era, and never stopped talking. Charismatic, annoying, exuberant, caustic, but undeniably relevant, he straddled the Enlightenment penchant for wanting to know everything about everything and the establishment of modern scientific methods designed to query that accrued knowledge. He claimed to sleep only four hours a night and called coffee “concentrated sunbeams.” Among his many scientific achievements, Humboldt theorized the spreading of the continental landmasses through plate tectonics, mapped the distribution of plants on three continents, and charted the way air and water move to create bands of climate at different latitudes and altitudes. He tracked what became known as the Humboldt Current in the Pacific Ocean and created what he called isotherms to chart mean temperatures around the globe. He observed the relationship between deforestation and changes in local climate, located the magnetic equator, and found in the geological strata fossil remains of both plants and animals that he understood to be precursors to modern life forms, acknowledging extinction before many others. Over the course of his adult life he developed a revolutionary theory that all aspects of the planet, from the outer atmosphere to the bottom of the oceans, were interconnected—a theory he called the “unity of nature.”

It is hard to overstate how radical an idea this was in its day. After spending more than thirty years amassing data and testing ideas, Humboldt delivered a series of lectures in Berlin in 1827, describing theories that electrified his audience. From these lectures, he began drafting the book that would cement his lasting significance, as he describes to his close friend, Varnhagen von Ense, in 1834:

I am going to press with my work,—the work of my life. The mad fancy has seized me of representing, in a single
work, the whole material world,—all that is known to us of the phenomena of heavenly space and terrestrial life, from the nebulae of stars to the geographical distribution of mosses on granite rocks, and this in a work in which a lively style shall at once interest and charm. Each great and important principle, wherever it appears to lurk, is to be mentioned in connection with facts.... My title at present is ‘Kosmos; Outlines of a description of the physical World.’... I know that Kosmos is very grand, and not without a certain tinge of affectation; but the title contains a striking word, meaning both heaven and earth.3

Humboldt’s singular text grew to fill five volumes, which were written in the last decade of his life to summarize all that he had learned in his scientific research. From the inaugural publication of the first volume in 1845, Kosmos—translated in English as Cosmos: A Sketch of the Physical Description of the Universe—was an international bestseller, with publishers vying for shipments of the book in at least twenty-six countries. Cosmos was translated almost as fast as it was published, was serialized in popular magazines, and inspired a generation of naturalists, explorers, artists, and authors.

ACKNOWLEDGEMENT


NOTES


Reclaiming Humboldt’s Vision for Today
LAURA DASSOW WALLS

September 14, 2019 was the 250th birthday of Alexander von Humboldt, and celebrations have been going on all around the world, from Lima to Quito and Bogota to Victoria, BC, Chicago, Philadelphia, and Durham to Paris and Halle and, of course, Berlin. In March 2020, the Smithsonian Museum will open a special exhibit on Humboldt and the United States that will keep the celebration going through next August, even as the wave of new books and articles about Humboldt shows no sign of slowing down.

Humboldt... was Western science’s first planetary theorist.

On an infinitely smaller scale, fall 2019 was also the ten-year anniversary of my book Passage to Cosmos: Alexander von Humboldt and the Shaping of America (University of Chicago, 2009). This coincidence has me reflecting on why we are finding our way back to Humboldt after a lapse of some 150 years. When I first discovered him in a graduate seminar in 1988, I, too, had no sense of who he was beyond some vague recollection of Humboldt penguins and the Humboldt Current. Yet the more I looked, the more I found his name: in his own time he was popular, beloved, honored, even revered—a kind of nineteenth century Einstein. But in the United States, wherever I raised his name I was met with blank stares. Passage to Cosmos was my attempt to help repair this great absence, and to ask how this nation, which had been dearer to him than any other outside his homes in France and Germany, had erased him from national memory.

But now it’s 2019, and Humboldt is back. The difference is not just the new wave of publications, it’s the new word in our vocabulary: the Anthropocene. Humboldt was a student of the Earth above all, and his life’s work encompassed how the terrestrial “system of cooperating forces” generated everything from the formation of Earth and the unfolding of life across geological time to the reciprocal agencies of land, water, atmosphere, and plant life in creating Earth’s many climate zones and in shaping the historical migrations of plants, animals, and peoples across continents and oceans—peoples who are all, he admonishes us
in *Cosmos*, “in like degree designed for freedom.” Humboldt, in short, was Western science’s first planetary theorist—the first to pull together a full range of interdisciplinary sciences, along with literature and the arts, to synthesize a holistic and complex understanding of Earth’s bio/anthro/geo/chemical processes. To understand the Anthropocene historically and culturally leads us, it turns out, directly back to the paradigm first proposed by Alexander von Humboldt—a paradigm that was arrested midstream by decisions favoring industrial modernity and the cornucopian economic thinking that feeds it. In fact, the industrial revolution may have been Humboldt’s blind spot: while he warned that Europe’s coal-fired industries, left unchecked, would change the continent’s climate, to imagine that this could expand exponentially and destabilize the entire planetary climate system was beyond his wildest nightmares.

**Humboldt saw that human beings are writing ourselves into the Earth at the deepest level, even as he saw that the Earth is writing itself into us as well.**

We don’t need Humboldt today for his science; his scientific heirs, today’s ecologists and Earth systems scientists, have long since surpassed his understanding, though they forget that Humboldt was their teacher. What we do need Humboldt for is his philosophy. He recognized that Earth is not a dead planet covered with a skiff of living organisms, but essentially a living planet; he envisioned Gaia over a century before Lovelock. But Humboldt’s Gaia—what he called Cosmos instead—is fundamentally different. First, it is Earth-centered, growing out of his deep understanding of a dynamic, “unquiet” planet in constant turmoil. Second, Humboldt’s Gaia not only includes humans, it bonds with humanity in a mutual, continuing process of self-creation. Humboldt saw that human beings are writing ourselves into the Earth at the deepest level, even as he saw that the Earth is writing itself into us as well; this partnership, the basis of his aesthetics, imbues all his popular writings.

When I wrote *Passage to Cosmos*, I aspired to convey all this to my readers. I thought then, and still think, that Humboldt’s cosmology was the road that readers and scholars of his work had missed (or swerved to avoid) and that it offers us both inspiration and guidance. What I didn’t foresee—and in 2009, who did?—was the terrifying speed of Anthropogenic climate change, mass extinction, and ecosystem collapse. The Earth, our scientists are warning us, is in the early stages not of a slow linear shift but of a rapid, non-linear phase change unlike anything seen before by *Homo sapiens*. And yet humans persist in easing ourselves into plans to decarbonize by some ever-later and more convenient date. But Earth, or Gaia, is unwilling to wait. As Humboldt knew, humans and nature are bound by reciprocal relationships in an ongoing dance, and he tried to deflect the self-centered notion that humans are the only dancers who matter. This makes the project of recalling Humboldt more urgent than ever. His was, once, a living option that riveted the attention of the world, inspired entire research programs, launched literary and artistic movements, and offered tools to help end slavery and colonialism. But soon after his death, Humboldt’s vision of Cosmos was recalled, in two senses: recollected, by many, as the sign of something once valued, but now lost; revoked, by many more, as irrelevant to the project of modernity. Today we need to recall Humboldt’s Cosmos in a third sense, summoning it out of our past not as a blueprint for our future, but as one vision of sustaining, and being sustained by, what he called “the horizon of life.”

**ACKNOWLEDGMENT**

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**NOTES**

2. Ibid., 344-45.
Once Alexander von Humboldt settled down in Paris after his monumental five-year journey through the Americas, he started to publish books. Among the first was a massive coffee-table extravaganza titled *Vues des Cordillères, et monuments des peuples indigènes de l’Amérique* (*Views of the Cordilleras and monuments of the indigenous peoples of America*). If you are ever so lucky as to find a copy, open it to the first plate, “Statue of an Azteck Priestess” (fig. 1). Crouched like a sphinx, stony, inscrutable, she gazes blankly out over your right shoulder, lips parted as if to speak. She looks vaguely Egyptian. Does this mean that the peoples of the Nile sent emissaries to the New World? Or did the Aztecs invent, on their own, similar sculptural forms? Humboldt thinks the latter, though he does note a case of genuine long-distance transmission: the pearls that ornament the priestess’s forehead show that the cosmopolitan city of Tenochtitlan, located high in the Mexican interior plains, was in contact with the California coast, “where pearls are fished up in great numbers.” Contemplating the statue leaves Humboldt with a congeries of questions: Why has she feet but no hands? Is she truly a priestess? A deity? Or simply an Aztec woman? Where did such imagery originate? Perhaps here is a reflection of the light from Asia that led to “the commencement of American civilization.” But these questions cannot be answered. In the vacuum left by the wholesale Spanish destruction of her civilization, the words she speaks cannot be heard. She reigns, silenced, mysterious, alien yet familiar, over the entirety of Humboldt’s works.¹

Humboldt’s next plate points directly to the cause of her silence and mystery (fig. 2). It shows the center of what was once her city—but now it is the center of Mexico City, a trim and elaborate...
the square itself is strikingly vacant, the inhabitants evacuated. Humboldt peoples the margins of this apparently European city not with elegant Spaniards or bustling Creoles but with a handful of “Guachinangoes,” the mixed race “lower class of the Mexican people”: their places destroyed, they yet remain, the erased and the excluded, strolling through the space of their ancestors, gazing on the emptiness that was their history.²

Next in this sequence comes the first of Humboldt’s natural scenes (fig. 3). The German scholar Ottmar Ette has remarked that in Humboldt, the ocean becomes “not the separating element but the one that engages everything into worldwide communication and connects everything.” Here, in Natural Bridges of Icononzo, is an image of separation and connection iconic of all Humboldt’s work, itself a bridge between natural and human. His text tells us that in the Andean high plains it is not the mountains but the valleys that stagger the European imagination, for they carve depth into the landscape, a wild aspect that fills the soul with “astonishment and terror.” Icononzo is the name of the ancient Muysco Indian village at

European square built, as Humboldt points out, on the site of Tenochtitlan, “totally destroyed” by the Spanish in 1521. Not one stone was left on another, and out of Tenochtitlan’s shattered buildings the Spanish quarried the materials for their new capital. Humboldt’s image is therefore a palimpsest: where the square stands, there formerly stood the spacious temple of Mexitli. Behind the cathedral once stood the palace of the king of Axajacatl, where Montezuma lodged his guests, the Spaniards. To the right of the cathedral now stands the palace of the viceroy of New Spain; to the left once stood Montezuma’s own palace. These specifics may, Humboldt drily remarks, interest those who study the conquest of Mexico. Here, in its opulent presence, ready to vie with the finest cities of Europe, rises an erasure of all the past, the heart of the American civilization Humboldt is attempting to resurrect. Where are its people? Humboldt admires the great equestrian statue of his patron Carlos IV in the center of the square but notes that the Indians call it “the great horse” (not “the great king”); he also notes that the four ornamental gates to the statue’s raised enclosure are kept “closed, to the great discontent of the natives.” Indeed,
the southern end of the valley of Pandi in the kingdom of New Granada (now known as Colombia), a valley sliced in two by this impassible gulf which yet is bridged, twice, by the hand of nature. Down its length thunders the Rio de la Summa Paz. Humboldt believes this chasm to have been created by an earthquake, which a single stratum of compact quartzose resisted, forming a natural bridge nearly a hundred meters above the torrent below. The second, lower bridge was formed when masses of rock tumbled into the gulf in such a way as to support each other, with the middle rock forming a keystone—a fact which in time, he speculates, might have given the Indians the concept of the arch, unknown to the Americas as it was to ancient Egypt. Here in this image are natural history and human purpose united: travelers use the upper bridge to pass between the valley’s northern and southern halves, and there on its flank the Indians have erected for the safety of travelers “a small balustrade of reeds.”

That these bridges are natural is important: they were already inscribed in nature, principles of architecture embodied in unworked stone. But humans have discovered them and use them—and so there is that frail reed fence: Don’t fall off! it cries. The artist, down in the riverbed looking up, turns utility into aesthetics, a lived experiential reality into a “view.” Yet this view can exist only in imagination. True, it is based on Humboldt’s own sketch, made in the field—but Humboldt sketched the bridges from the northern valley above, in a side view. The Paris artist has accomplished the impossible, vaulted us to the midst of the river far below, a place so dark and inaccessible that the only way Humboldt can see the thousands of cave-dwelling birds that live and fly in its depths is to bounce rockets off the canyon sides and glimpse them flying in the flare of artificial light.

In this view not just two but many worlds cross: the plate tectonics that split open the rock, the waters that plunge down the crevasse, the vegetation that clothes the rock walls, the birds who call this chasm home and fill it with their “lugubrious cries,” the Muysco Indians who name the birds—cacas, Humboldt tells us—and who travel to market across this bridge, the European scientist who ventures to place the Cordilleran birds in their Linnaean genus, Caprimulgus, even as he records the native’s speech and sketches the site in his notebook, the artist, M. Bouquet of Paris, who reimagined Humboldt’s field sketch as a sublime view, the viewer who sees in this one image the braiding together of fact and beauty, science and poetry, nature and society, history poised on the present instant.

The discipline I work within is conventionally named “literature,” understood to include that subset of written texts encompassing fiction and poetry and understood as “aesthetic”—expressive and emotive—rather than “scientific,” objective and factual, or “political,” social and contested. But Humboldt resisted the tectonic shift that was splitting the world of knowledge under his feet even as he wrote and lived, and in his writings he created his own natural bridge. More: this is not a light structure thrown across like a plank to provide perilous passage between two great realms. It is pulled into place by gravity and by its weight supports the whole, becoming the keystone to Humboldt’s cosmic architecture. Humboldt chose the title for his late work, Cosmos, with care; though it daunted him a little, he stood by it, for it allowed him to articulate both landings of his bridge: first, what Thoreau called “hard matter and rocks in place,” the physical universe that exists apart from human purpose; and second, the beauty and order of that universe, the very idea of the whole. The physical universe exists without us, no doubt, beyond us and other than us; but the Cosmos needs us. Only in the dance of world and mind, subject and object, does Humboldt’s Cosmos come into being. It is the act of human art—as in this very image—to represent the real, not to copy or replicate it but to make it “present” to
Vues des Cordillères was a gorgeous production, but it priced itself right out of the market; only a few copies exist in the United States today. So Humboldt’s friend, the English radical poet and publisher Helen Maria Williams, persuaded him to select just a few of the illustrations and republish the book in a smaller and cheaper London edition. Her translation, published in 1814 under the rather gusty title (complete with exclamation point) Researches concerning the Institutions and Monuments of the Ancient Inhabitants of America, with Descriptions and Views of Some of the Most Striking Scenes in the Cordilleras!, circulated Humboldt’s ideas much more widely among English-speaking audiences. In any language, this was a very odd book, a jumble tossing together sculpture, costumes, mountains, buildings, hieroglyphs, waterfalls, calendars, pyramids, and geological wonders. Was there a method to this joyous, exuberant madness? Yes: each illustration is supported by an essay, and each essay references an illustration. As text and picture, theory and illustration, complete each other, so do science and art, nature and mind. The landscape cannot be understood without its people, nor can the various cultures and civilizations Humboldt documents be understood without seeing the landscape that shaped them and that they, in turn, shaped. Thus the experimental, hybrid form of this book puts on display the complex ways in which nature and culture produce each other within the historical context of Spanish colonialism. Humboldt provided a fascinating glimpse into the exotic and secret kingdom of Spain’s New World colonies, and his illustrations not only influenced the development of Latin American art, but modeled for North American scientist-explorers a new way to represent the landscapes of the American West.

Humboldt periodically flashes into anger at the stupidity, barbarism, and fanaticism of the Spanish conquerors who destroyed... civilization did not dawn once in the Old World, spreading outward from a single cradle; it had multiple centers of origin, many cradles...

all they touched, leveling the cities, burning the libraries, and abandoning what little was left to decay and misfortune. From the shards and fragments he attempts to piece together the moral, aesthetic, political, cultural, and religious life of pre-Columbian Native Americans, centering on Mexico and the Andes and borrowing from the languages and historical traditions of their descendants. His approach is deliberately comparative. How much, he asks, do New World nations resemble those of the Old World? From whence came these peoples, with their hundreds of languages, their legends and sophisticated calendars, their technologies and distinctive religions? Most likely from East Asia, he decides, pointing for evidence to linguistic, cultural, and technological roots across the Pacific among the Tibetans and the Japanese. Yet so long ago had they migrated that American nations developed wholly new and independent civilizations, in isolation from the rest of the world. The implications were startling: civilization did not dawn once in the Old World, spreading outward from a single cradle; it had multiple centers of origin, many cradles, and one of them was in the New World. Given the affinity of the hundreds of American languages and the similarities in “the cosmogonies, the monuments, the hieroglyphics, and institutions,” Humboldt is convinced that a single people entered North America from Asia to spread and diversify across two continents.

Many cradles, but one people. Everywhere Humboldt looks he sees one great truth verified: “The Caucasian, Mongul, American, Malay, and Negro races” are not “insulated” from one another but form one “great family of the human race, one single organic type, modified by circumstances which perhaps will ever remain unknown.” If all humanity forms one “great family,” then all human works, even those that do not meet our European standards of beauty, are worthy of respect and attention, for they all tell a part of the greater human story. As Humboldt says, different nations have followed many “different roads in their progress toward social perfection,” and their progress is helped or hindered not by internal, biological limitations of race but by external, or environmental, circumstances and accidents. The Americas, for instance, lacked milk-giving ruminants capable of domestication. Instead of cattle, the Asian immigrants encountered untamable musk oxen and bison, and so their road from hunting to agriculture necessarily skipped over the supposedly required “pastoral” stage, derailing the traditional doctrine that human cultures must advance through the three “stages” of hunting, herding, and agriculture. By another trick of geography, American peoples were cut off from communication with the rest of mankind, left to struggle with a “savage and disordered nature” with no resources other than their own ingenuity. Who can wonder, then, at the apparently “rude” style or “incorrect” expression of the arts of native America, or at their slower progress? How many nations, asks Humboldt, can boast the mild climate of the gentle Mediterranean?
Humboldt argues, then, that all races form one great human family, and their great diversity comes from adapting to their many and various environments. Since environment is crucial to understanding how human unity flowers into such diverse societies, the only way to understand a people is to become immersed in their landscape. Cultures cannot be judged from afar. Scholars who “never quitted Europe” say foolish things—for instance, that America is a marshy country with few animals, overrun by savage hordes. Travel allows us to overcome such prejudices, to explore the ways human and natural history shed mutual light on each other, and so Humboldt’s method emerges in his book’s mad scramble of nature and culture. As he declares, “An accurate knowledge of the origin of the arts can be acquired only from studying the nature of the site where they arose.” Archaeological research must take into account climate and soil, the presence or absence of animals, the physiognomy of plants and of landforms, for they all influence the progress and style of human arts. Thus his landscape views are not intended as decorative but to drive forward his argument: the cultures of the mountain peoples of the Cordilleras are stamped by the massive and wild nature of their high peaks and hanging valleys. After apologizing for the book’s lack of order, Humboldt ends his introduction with a frustrated but hopeful note: may his “feeble sketches” lead other travelers to visit these regions and “retrace accurately” the “stupendous scenes, to which the Old Continent offers no resemblance.”

Travelers came, of course, not all of them so idealistic as Humboldt. In his time, the face of nature he so loved was being remade by colonial imperialism, global capitalism, and the industrial revolution. He himself was a knowing participant, both in creating and circulating new regimes of knowledge and in helping to construct a global economy that would, he perhaps naively believed, advance the cause of freedom through free trade and the open exchange of ideas. Though his ideas and methods were co-opted by the imperialist projects of Europe and the United States, Humboldt consistently protested against the evils of colonial exploitation, particularly slavery and the oppression of indigenous peoples, and he deliberately incorporated the voices and knowledges of ethnic and colonial peoples into his planetary project.

Humboldt attempted, in short, to create a counternarrative to the drumbeat of imperial progress, and in this attempt he effectively created what we would now call an environmental discourse. His foundational assumption was that neither humans nor nature can be understood in isolation. In his social writings, nature was never merely background but played an essential role in the development of human societies; in his natural writings, the ways various societies construct their views of nature were crucial to understanding their physical environment. For Humboldt that environment was overwhelmingly historical and spatial: though he worked some in physics and chemistry, his interests always centered on the Earth and the processes that generate its forms and surfaces. His scientific methods were relentlessly inductive, for he sought to identify patterns in nature by combining and collating hundreds of measurements—myriads of data points—until out of what the Russian physical geographer Peter Kropotkin called “the bewildering chaos of scattered observations” flashed a new vision of the “harmonious whole” they described, “like an Alpine chain suddenly emerging in all its grandeur from the mists which concealed it the moment before, glittering under the rays of the sun in all its simplicity and variety, all its mightiness and beauty.” Far out on the horizon, “the eye detects the outlines of new and still wider generalizations.” As Kropotkin’s lyrical description suggests, such quantitative work was not the enemy but the ally to poetic insight. For the Humboldtian scientist, the doing of science combined rigorous and exacting labor with the joy of poetic creation and an almost spiritual sense of revelation, as if nature borrowed the mind and hand of the scientist to describe its own most beautiful laws and structures.

Generating an environmental discourse was only half the journey. To complete it meant enrolling others to the cause: in letters and mentoring relationships with young scientists and artists, salon conversations, political negotiations, the organization of scientific societies and international scientific research, and lectures and publications both popular and technical, Humboldt sought to create institutions and practices that would spread his particular way of thinking about humans and nature. In one sense he succeeded spectacularly. He virtually invented modern international science and seeded so many fields with productive new ideas that historians of science call the era “Humboldtian.” However, the scientific results of his initiating efforts eventually passed him by, and by his death his predisciplinary insistence that the physical and natural sciences, economics, politics, cultural history, ethnology, linguistics, and aesthetics all be practiced together in an environmental network of interacting discourses was resisted as heroic but impossible, fractured by the rise of specialization and standards of scientific objectivity, and suppressed as useless and old-fashioned. The old Baron, the most loquacious man of his time, was effectively silenced.

This silencing has done real damage to environmental studies, for Humboldt stands at the head of environmental and ecological thinking today. Recovering Humboldt does more than deepen our knowledge of the long foreground of such iconic
figures as Henry David Thoreau, George Perkins Marsh, and John Muir—Humboldtians all. First, it locates the first global wave of environmental studies just prior to the era of scientific specialization, when scientific discourses were fluid and a single mind could still innovate in multiple disciplines across the humanities and social and natural sciences, allowing each to inform the others. Second, and more importantly, it places at the head of environmental studies an alternative narrative that closes the gap between mind and nature by demonstrating how each creates or constructs the other—a concept that, thanks to modernism’s persistent dualisms, still seems novel today.

**Humboldt consistently protested against the evils of colonial exploitation, particularly slavery and the oppression of indigenous peoples.**

Finally, recovering Humboldt positions the first wave of environmental thinking not within a nationalistic debate over resource exploitation but within a global debate over capitalism and imperial power. The apparent roots of Anglo-American nature writing in imperial discourses of exploration have made it too easy to dismiss such writing as ideologically complicit. But the story is deeper and more complex than this. Humboldt grew up knowing that nature was the site of deeply political conflict, and his popular works deplored the tragic destruction of the civilizations of the Americas and tried to reconnect them with the global human community, by showing that colonial exploitation of the land went hand in hand with the destruction and continuing oppression of its ethnic peoples. Building on the insights of eighteenth-century colonial scientists, Humboldt became what Ramachandra Guha calls “a pioneering analyst of global deforestation,” arguing as early as 1805 that cutting down forests causes climate change, and in later works attributing the alarming and inexplicable fall in water levels in both Mexico’s Lake Tetzcoco and Venezuela’s Lake Valencia to deforestation by the Spanish, which desiccated the landscape and caused periodic destructive floods. This cycle was made even worse in Mexico by imperial Spain’s ill-informed and catastrophic attempt to reengineer Mexico City’s water system, in which colonial rulers forced natives to build a massive canal to drain the upland lakes. As Humboldt documents, the folly of the Europeans ruined once-plentiful water resources and poisoned once-fertile agricultural land, and their abusive labor practices killed untold numbers of workers and plunged the entire Indian population into poverty.9

Richard Grove argues that the nineteenth-century growth of natural knowledge and resulting new ecological concepts of nature were—and are—inseparable from European colonialism. Humboldt added the necessary conclusion that environmental destruction was also socially devastating: natural ecology entails social ecology. In Humboldt the two were forged together, humans and nature forming two sides of the same coin. Humboldt’s work is refracted in the writings of Henry David Thoreau, who also joined the causes of natural and social justice; their separation into non-communicating fields came later. As Aaron Sachs has recently argued, today, with social justice forming an exciting new front in ecocriticism, recovering Humboldt would open a radical environmental tradition that would link with the social justice orientation of postcolonialism.10 Splitting humans from nature has other consequences, too: the separation of scientific from literary knowledge is now so total that leading ecocritics like Ursula Heise can see no viable connection. Academic environmental studies have “to date not established any significant links between literary and scientific approaches to the environment.” Instead, literature and art have become “bulwarks” against the encroachments of science and technology rather than “sites of encounter between different types of knowledge and discourse.” Even works sympathetic to science show no “conceptual bridging between scientific description and aesthetic valuation.”

**The Passage to Cosmos**

We are back, standing, once again, on Humboldt’s bridge. Two hundred years later, does it still hold? Or has it, too, broken into ruins, one more monument to a lost civilization? Let us imagine it holding. In bridging peoples, disciplines, places, and historical eras, Humboldt sought to create a zone of exchange rather than domination, a pluriform and multivocalic world that would allow humans and natures to speak through a range of representations, from scientific to social to aesthetic, augmenting the stripped-down world of scientific fact by presenting those facts as elements of a renewed and revitalized Cosmos. Humboldt tried to intervene at the discursive level—which is to say he collected, he wrote, published, and lectured, voluminously and persistently, letter by letter, essay by essay, book by book, person by person, building over seventy years a massive global network of scientific and cultural knowledge and artistic expression by which he
hoped to bring natural knowledge into the public sphere as a form of liberation. In an era of bloodshed, revolution, imperial warfare, and Malthusian struggle against a nature “red in tooth and claw,” Humboldt found in nature not limitation and conflict but freedom, justice, and harmony. His was a quixotic vision, aimed at changing the course of history, and it failed. 

recovering Humboldt would open a radical environmental tradition that would link with the social justice orientation of postcolonialism.

But not entirely. Humboldt’s subversive vision of science for the people lived on in Europe (most provocatively in the work of Peter Kropotkin), and in the United States he succeeded in bringing into being a discourse, a way of speaking, about nature that we now call “environmental”: namely, a planetary interactive causal network operating across multiple scale levels, temporal and spatial, individual to social to natural, scientific to aesthetic to spiritual. Darwin, one of Humboldt’s closest readers, would envision an interactive network of chance and inheritance working across time and space to evolve new life forms. Thoreau, another of Humboldt’s closest readers, would recast Humboldt’s methods into the idiom of American Transcendentalism, thereby, with John Muir, the “American Humboldt,” and George Perkins Marsh, another Humboldt convert, founding North American environmental thought. Soon this new discourse of nature would receive a name: ecology.12 The new name designated a science, one more subspecialty in the widening panorama of natural knowledges. But before it was a science, before it could be a science, “ecology” was a discourse. It was, in fact, Humboldt’s discourse. It had first to be imagined, then to be represented, circulated, and reimagined in works of great beauty and power, from Humboldt forward, among thinkers, poets, and painters. His writings and ideas are like a rhizome, the root connecting a ramifying community: Coleridge, Darwin, Emerson, Susan Cooper, Thoreau, Whitman, and Poe; George Catlin and Frederic Church; John Muir and George Perkins Marsh; Franz Boas and Lewis Mumford. Each was moved by Humboldt’s words and pictures to imagine a new way of envisioning nature, a way that stamped its mark on a distinctive American literature and art and that remains alive in American culture today.

ACKNOWLEDGEMENTS

Reprinted with permission from The Passage to Cosmos: Alexander von Humboldt and the Shaping of America by Laura Dassow Walls, published by The University of Chicago Press. © 2009 by The University of Chicago. All rights reserved.

NOTES

1. A. von Humboldt, Researches Concerning the Institutions and Monuments of the Ancient Inhabitants of America, trans. H.M. Williams, 2 vols. (London, 1814; facs. ed., Amsterdam: Mellen Publishing, 1972), 1:45, 48, hereafter cited as Researches. This figure, now a major work in the canon of Aztec art, has been identified as Chalchiuhtlicue, “the goddess of groundwater.” In late May to early June the Aztecs performed a rite to her at a shrine in the middle of Lake Tetzoco, part of the most important festival for Tlaloc, the deity of rain, meant to summon the rainy season. See plate 17 and p. 261 in The Aztec Empire, ed. Felipe Solis (New York: Guggenheim, 2004).

2. Researches 1:52. The American who took Humboldt’s invitation the farthest in this direction was William Hickling Prescott, who built on the work of Humboldt, among others, to re-create the civilizations of Mexico and Peru in his two classic histories, The Conquest of Mexico and The Conquest of Peru.


5. Researches 1:22-23. D.A. Brading suggests that Humboldt believed nature rendered the Indian peoples so savage that civilization had to be introduced by “missionaries” from Asia, but this interpretation leaves Humboldt’s actual question unanswered: not where did this civilization come from, but where did the American peoples come from? See D.A. Brading, The First America: The Spanish Monarchy, Creole Patriots, and the Liberal State, 1492–1867 (Cambridge, UK: Cambridge University Press, 1991), 524-25.


7. Researches 1:4, 40-41, 42.


Looking Out the Window: The Political, Intellectual, and Moral Necessities of Modern Environmentalism

KATHRYN GWIAZDON

INTRODUCTION

In the beautifully illustrated The Adventures of Alexander von Humboldt, author Andrea Wulf and illustrator Lillian Melcher depict Alexander von Humboldt and Aimé Bonpland’s arrival in Cumaná, South America, in 1799. While unpacking their scientific equipment and remarking on the species they had already seen (and just on their way to their lodgings!), Bonpland turns to Humboldt and says, “But have you looked out the window?”

It was a slave market.

Modern environmentalism is failing us. At this point, this is not some novel statement. We are witnessing it as the Amazon burns. We are witnessing it as millions of refugees flee hunger, violence, and harsh environmental conditions. We are witnessing it as millions of species have been lost to extinction, and millions more are staring into the precipice.

But the Amazon—or the ancient boreal forests of the Arctic, or the peatlands of Indonesia, or the Australian bush, or the urban forests of California—did not choose to burn. Refugees are not fleeing their homes because they choose to be poor, hungry, targeted, and abused. Species do not choose extinction. Someone is making the choices that determine the fates of vulnerable people, species, and places everywhere. And these decisions, which create or manipulate the systems that we all live by, are taking us to an existential crisis.

We must look out the window.

We are witnessing power, greed, and division that poisons our entire relational world. We must connect our conservation crises with our governance crises. We must recognize that the harm we do to Nature is intimately linked to the harm we do to humanity, and the harm we do to humanity is intimately linked to the harm we do to Nature. If you follow the path of the plants, you follow the path of human civilizations—and of greed, exploitation, colonialism, barbarism. It is all connected.

We must look out the window, and we must walk out the door.

We must bear witness to the harms happening around us, against man and Nature, and we must share our stories of success and failure. We must learn from one another and from Nature, and we must take our knowledge to the legislators, the power-holders, the decision-makers—the ones who define “harm” or “humanity,” “justice” or “peace,” “violence” or “war” and create governance systems upon those definitions. Is an economic system that creates vast inequalities not a violent harm against humanity—and the Nature that it exploits? Are
those who seek to civilize and save by ensnaring and enslaving moral? Is an environmentalism that embraces systems that harm still environmentalism? If you follow the path of power, and particularly power without wisdom, it is easy to see what has brought us to our knees, in pain and in protest.

We must look out the window, we must walk out the door—and when we are ready, we must also look into the mirror.

We are witnessing our own failed attempts to save the foundations of life. We call ourselves environmentalists, yet we are not achieving our purpose. We must look inward and acknowledge that even those with the best of intentions may be perpetuating a harmful system. We must do more than care, we must care thoughtfully. What language are we using? Who are we allowing to set the frameworks for our arguments and our actions? Are we making the necessary connections, seeing the common threads, to all who are targeted and harmed?

We are witnessing power, greed, and division that poisons our entire relational world.

In the spirit of critical loyalty, this essay calls for a review of modern environmentalism and what is politically, intellectually, and morally required to better respond to our crises. To do this, it is only appropriate to look through the lens of a man considered a founding father of environmentalism, Alexander von Humboldt. Is environmentalism today a true representation of the values it was founded upon? And if not, why not? The essay will open with a brief exploration into the decisions and the systems that have brought us to our current conservation crises, our current governance crises, and our current values crises. It will then argue for a Humboldtian approach to environmentalism that forces us to look out the window, go out the front door, and look inward to understand and advance a living history, a living Nature, and a living law. Our forms and systems today are a result of what came before us. Our place within the cosmos dictates that we should act with humility, intellect, respect, and imagination. Our governance systems need to evolve as Nature evolves and to be the living representation of the best of humanity and the truth of our interconnected and interdependent relationships with one another and the entire organic and inorganic world. We must advance justice, “the beautiful with the good,” and build a better society for all.

In 1808, Humboldt published Ansichten der Natur (Views of Nature) to show the intricate and related beauty of Nature in order to provide hope and knowledge “to embattled minds particularly.” In celebration of his 250th birthday, we shall now look to him to help heal our embattled minds through these embattled, uncertain times, where the only certainty is that if we continue to do what we are doing, we will not survive. We must seek alternatives.

THE ISSUES THAT ENTANGLE US, IMPASSION US—AND ENRAGE US!

Unlike many scientists—and scientific journals—today, Humboldt had no fear of the exclamation point. For love and horror, incredulity and amazement, this blend of scientific inquiry with personal passion offers the reader an intimate representation of himself in his writings and the emotions within him when connecting with peoples, cultures, and Nature, or even arriving at conclusions to the data he had gathered:

How numerous may be the smaller plants, which are not visible to the observer’s eye? And what colors the birds have, and the fish, even the crabs (sky-blue and yellow)! We run around like fools; in the first three days, we could not categorize anything because we would always toss aside one object in order to pick up another. Bonpland assures me that he will lose his mind if the wonders do not soon cease.

Nature was alive! And he, as part of Nature, in his friendships, his adventures, and his writings, was also alive. “The mind is invigorated by the acquisition of new ideas,” and this truth of self and of what he was witnessing was equally excitedly received by people around the world. Poets, philosophers, and political figures—those who birthed nations, drafted legislation, preserved natural spaces, and ignited revolutions—sought a political, intellectual, emotional, and even physical, connection to him. But his words were not just for the likes of Charles Darwin, Henry David Thoreau, Walt Whitman, Johann Wolfgang von Goethe, Simón Bolívar, Thomas Jefferson, and James Madison, to name a few of his admirers; they were for everyone. Passion is a powerful, motivating, international language, free of social or economic castes. After all, isn’t it only human to be impassioned in the face of great beauty, or in the face of great harm?
Today we are witnessing profound emotion with profound knowledge. We see it in the worldwide protests that raise the banner for climate emergencies and extinction rebellions, alongside the well-supported scientific and geopolitical knowledge shared by thousands of activists, scientists, lawyers, politicians, and academics. However, we are not moving closer to an adequate global response to our shared crises. If we have the passion and knowledge to move millions of global citizens, then why are the governance institutions—those in power—not moving? What are we—those who advocate for the protection of life—doing wrong? We must first identify the challenges in order to confront the challenges.

Our place within the cosmos dictates that we should act with humility, intellect, respect, and imagination.

**The Rationalizations of Greed**

Humboldt did not save his emotion for only the beautiful landscapes and colorful species around him; it also arose when he saw how the “cultivations of the soil” led to the atrocities of colonialism, the hypocrisies of “civilized” nations, and the “morality” of Christian missions. “But how sad a spectacle it is to see Christian and civilized peoples discussing among themselves who, over the course of three centuries, has made fewer Africans perish by reducing them to slavery!” The indigenous peoples of South America were also pushed further and further into the forests because of the missionaries: “Though tiger and crocodile battle horses and cattle in the steppe, we see on its forested bank, in the wildernesses of Guyana, man forever armed against man.” If the colonists did not enslave them, the missionaries would ensnare them, forcing them to work for little or no pay to help advance their brand of morality and civilization.

Colonialism is nothing more than the greed of humanity realized. It is a greed for land, for money, for power, for self. It is a cult of wealth that rationalizes the worst of humanity. It is a hateful thirst that is never sated. It is violence perpetuated by violence that often ends with violence. It is the antithesis to life. We must be more than the cold calculations, the valuation of life that ultimately devalues life, the consumption of humanity that also consumes Nature. “May a lasting peace replace partisan strife! May the seeds of civil discord, sown for three centuries to assure the dominance of the metropole, be gradually smothered!”

While traveling through the Incan ruins and roads to the fertile valley of the Cajamarca, Humboldt was joined by the son of an ancient royal line, who were now “living in conditions of great need... through no fault of their own.” He told Humboldt the story of a hidden city of wealth just below their feet, the subterranean golden gardens of Inca. Humboldt shares this story in *Views of Nature*:

“Do you and your parents not feel,” I asked the boy, “since you so firmly believe in the existence of this garden, an occasional desire, in light of your want, to dig for the treasures that lie so near?” The boy’s answer was so simple, so much the expression of the quiet resignation that characterizes the aboriginal people of this land, that I put it down in my journal in Spanish: “Such a desire (tal antojo) does not come to us; my father says that it would be a sin (que fuse pecado). If we had all of the golden branches with all of their golden fruit, then our white neighbors would hate us and harm us. We possess a little field and good wheat (buen trigo).” 10

Powerful nations sought abundant wealth—abundant natural wealth—and so abundant wealth brought powerful nations, and powerful nations brought great violence. It was the greed of man, and it beget a fearful curse on those who had the unhappy circumstance of living in the splendor of Nature.

**The Ravaged Soil, the Ravaged Soul**

When his *Political Essay on the Island of Cuba* was published—a critique of colonialism and slavery—it was banned in the United States, a land that had just adopted a Constitution that declared the equality of all men. Humboldt, known as the leading naturalist in the world, afforded his criticism of slavery “far greater importance than to the arduous labors of determining locations through astronomical observations, experiments with magnetic intensity, or statistical statements.” He made the connections, he embraced the human condition within his studies of the natural condition.

In a private letter to a friend, Julius Fröbel, and after assuring him that their differences on mountain elevations was just one of words, Humboldt turned to “other things which come nearer my heart than those elevations.” He wrote, “My book against Slavery,” he wrote, “is not prohibited in Madrid, but cannot be purchased in the United States, which you call ‘the Republic of distinguished people,’ except with the omission of everything that relates to the sufferings of our colored fellow-men.... Add to this, forgetting that the most ancient cultivation of humanity... was the work of colored men.”
Slavery was an act of inhumanity, an act of evil, “rendering both the conquerors and the conquered more ferocious.” And their industry—based on profit and ignorance of the land—destroyed the life of the land, and the people who relied on it. Humboldt saw this poverty of soil, this lack of food in a once-abundant land, as evidence that the “the Europeans’ imprudent activities have upset the natural order.”

300 years of colonial policy and an unreasonable public administration have left a country whose natural endowments are as marvelous as anything on the face of the earth in such shambles that to find a comparably depopulated region, one must look either to the frozen northern regions or west of the Allegheny Mountains to the forests of Tennessee, where the first clearings were made only half a century ago!

Humboldt knew that soil, altitude, and climate is what cultivates the particular plants of a particular region, not men and their profit-driven motives. Nature intends her consequences; man has little control over such powers. Therefore, when the Europeans introduced their new crops and the system of slavery that accompanied them, Humboldt believed that “far from being beneficial, [they] increased the immorality and the misfortune of the human species. The introduction of African slaves, ravaging a part of the Old Continent, brought discord and vengeance to the New Continent.”

Humboldt believed that those who bore witness to harm have a particular responsibility to act.

Knowledge of a land, and of our relationships to it, can only help to expand our circles of care. When something we love is being harmed, we have a natural, almost primal urge to defend it. Indeed, most cries for righteous action throughout history have been in response to great injustices. Bolívar led the independence of many South American states from Spanish colonial rule, and his words, his writings, and his revolutions were greatly inspired by Humboldt. He, like Humboldt before him, made political, intellectual, and moral calls for action. And he used Humboldt’s vibrant descriptions of his own land to inspire protective love and care for one’s home, a home threatened by a foreign nation:

Vast regions furrowed by mighty rivers, inexhaustible springs of agricultural and mercantile riches, these will all be rendered null by Spanish malice. Entire provinces are transformed to deserts; others are become frightful arenas of bloody anarchy. Passions have been aroused by every stimulus, fanaticism has turned people’s minds into volcanoes, and extermination will be the result of these chaotic elements.

Yet Bolívar also knew he could not topple power without the assistance of those with power. In his call for help to other nations, and in true Humboldtian form, his words were given legitimacy through eyewitness, and truth through emotion:

I was witness, dear friend, to the devouring flame that is swiftly consuming my unfortunate land. Unable to extinguish it despite innumerable and unheard of efforts, I have come out to sound the alarm to the world, to beg for help, and to announce to Great Britain and to all humanity that a large part of the human race is going to perish and that the most beautiful half of the earth is going to be reduced to a state of desolation.

Please view with indulgence these emotional transports, which must seem like the exaggerations of a madman rather than expressions of hard truth and reasonable predictions.
of what is to come. But no, it is no more than a faithful rep-
resentation of what I have seen and what is inevitable.32
Humboldt believed that those who bore witness to harm have
a particular responsibility to act: “It befits the traveler who wit-
nessed up close the torment and degradation of humanity to
bring the laments of the wretched to the ears of those who have
the power to allay them.”33 We must look to those who have the
purpose to allay our harms, and to those who have the power
to allay our harms, and consider whether they are making dec-
isions that protect us from harm, or whether they perpetuate
that which harms us all.

A Peaceful Harm

Between nations, there is calm and there is chaos—and some-
times one has more cause to fear the peace than the chaos.34
Chaos may be righteous people revolting against an evil system.
Calm may be the result of unjust, powerful political actors
forcing others into a subservient, peaceful servitude. It can be
seen when those in power—either through political leaders or
the power of the purse—silence dissent, criminalize protest,
remove themselves from meaningful dialogue, or actively work
against an informed citizenry and informed decision-making.
In democracies, we are told that there is representative rule
and the power is in the people. But is it?

Humboldt believed that “barbarity is the same in all ages,
when men can indulge their passions without restraint, and
when governments tolerate an order of things contrary to the
laws of nature, and, consequently, to the welfare of society.”35
From the roots of colonialism and slavery, we seek a better way
forward, not understanding that the same values and systems
that defend barbarity and inhumanity still exist today. Is our
lifeline soil, air, water, relationships—as Nature has so provid-
ed? Or is it selfishness, money, competition, cruelty—as those
with power are leading us to?

Bolivar extended the concept of slavery from physical enslav-
ment to political powerlessness, to citizenship in a land where
unjust rules ruled. He wrote, “People are slaves when the
government, by its essence or through its vices, tramples and
usurps the rights of the citizen or subject.”36 What power does a
people—or, in global governance, weaker nations—have when
votes and voices are manipulated, when truth and science are
denied and mocked, and when the systems of economy and
justice foster inequality, injustice, and discriminatory impris-

onment? In global governance, powerful nations control negoti-
tiations, decisions, and harm. Their decisions harm others, and
yet there is no recourse; in other words, there is no justice in
global governance—the largest body of human relationships on
our planet. We may not be politically powerless to our national
governments, who may differ in their rights and responsibili-
ties, but what are we in global governance, when none of us have
actionable rights? When—as we see with greenhouse gas emis-
sions—even states are allowed to harm without consequence?

We must look inward. Instead of demanding real, meaningful
change, are we embracing a system that makes the harmful
powerful, the wrong right, the unjust just? Are we embracing
the language of the systems that harm—ecosystem services,
carbon markets and sinks—while abandoning the language of a
movement that motivates—Nature, life, harmony, systems, the
sacred? Do we turn a blind eye to donors or dollars that are an-
thetical to our powerful and purposeful missions and visions?
Are we complicit in the harms to humanity and Nature?

We must also ask, in our hopeful visions, in our constant strug-
gles, are we being manipulated? We are sold democracy, yet
we purchase plutocracy, and the harmful systems continue. We
believe that if we play the game of the powerful, if we speak the
language of markets, then maybe we can get closer to achieving
our hopeful aims. And if our organizations accept the money (a
symbol of power) from those whose actions harm our visions
and missions—then maybe they will listen to us, then maybe
we can get closer to achieving our hopeful aims. We see the
power of power (decision-making!) and wish to play with the
powerful to get to that end, yet to do that, we place self-made
blinders over our eyes to keep us from seeing how they became
powerful, how they became the decision-makers.

Are we embracing the language of the systems that harm—ecosystem services,
carbon markets and sinks—while abandoning the language of a movement
that motivates—Nature, life, harmony, systems, the sacred?

For the truth is much harder to swallow: in playing their game,
speaking their language, taking their money, cleansing their
identities, we have become a part of the harmful system. The
power players have not changed, their missions and visions—
and profit motives—have not changed (at least in the amounts
to effect real change), and now those who work against harm
and injustice have taken and ingested the fruit from the poi-
sonous tree. Our cause has been ultimately harmed, and the
harmful systems will continue unless we change our course. Our care must be as thoughtful as our cause. We must demand profound structural change to the harmful systems that govern us. After all, every great evil is “not self-correcting, but self-perpetuating, and [can] be ended only by concerted moral and political action.”

A HUMBOLDTIAN WAY FORWARD

It is our duty—as advocates for life—to strongly and courageously respond to the harms against life. With courage and excited adventure, Humboldt faced jungles and volcanoes; with duty and persistence, he faced colonial powers and masters of men. If we are to be advocates for Nature, then we must embrace Nature, her power, her mystery, our relationships to her, and our dependence upon her. It is time to stop playing games and start standing up for what is right and just—and true—in this world. Goethe said that Humboldt lit the sciences into a “bright flame.”

Let us learn from Humboldt, through his perspective and his writing—and let us light truth, justice, and democracy into a bright flame.

A Living History

Follow the path of plants and you follow the path of nations, of human migration, of shifting continents. “The impact of food that can be more or less stimulating to the character and strength of the passions, the history of navigations and wars carried out over the products of the plant kingdom; such are the factors that link the geography of plants to the political and intellectual history of mankind.”

We—as individuals, a nation, or a human family—are a continuation of our past, into the present, laying down the foundations for our future. Indeed, “we cannot form a just conception of [our] nature without looking back on the mode of [our] formation.”

And like one who studies nature, we “cannot form a conception of the present without pursuing, through countless ages, the history of the past. In tracing the physical delineation of the globe, we behold the present and the past reciprocally incorporated.”

History is alive, it is experience and observation, and it is all connected. “Thus does dead material, animated by the Life Force, go through an innumerable succession of generations; the same material in which once a puny worm momentarily enjoyed his existence may well have encased the godlike spirit of Pythagoras.” Within each of us is more than we can ever imagine.

Humboldt—his perspective and his writing—was a product of his times, the good and the bad. Political events often dictated his routes, wars often dictated his funds, and the world was often closed. He was born into a prominent family with wealth and connections, not something many of us can also claim, yet his connections pointed him to working in the mines, where his adventurous spirit saw the magic in geology, and his empathetic spirit wanted to help the workers. Not only did he see history in geology—“their form is their history”—but he saw the need for care in all our relations, opening a school for the miners, inventing safer breathing apparatuses, and creating technologies that allowed for more oxygen to enter the mineshafts.

And—like Humboldt, like each of us—I am a product of my time. I argue that nationalism is an obstacle to state responses to global crises because I, an American, am bearing witness to nationalism being an obstacle to state responses to global crises. It affects my life, it affects my perspective on the relations of humans and Nature, and it affects my writing. I argue that truth is manipulated, experts are mocked, justice is being made unjust, and science is targeted as an enemy, a threat to the acquisition of and stranglehold on corrupt power, because I am bearing witness to the political, intellectual, and moral being targeted by the corrupt and powerful.

Nature is our home, and our perspectives are a product of what we are experiencing, from all senses, from our particular points in history. And our history guides us—and frees us:

Sustained by previous discoveries, we can go forth into the future, and by foreseeing the consequences of phenomena, we can understand once and for all the laws to which nature subjected itself. In the midst of this research, we can achieve an intellectual pleasure, a moral freedom that fortifies us against the blows of fate and which no external power can ever reach.

Our form is our history, and our history—and place—is not just a story of harms, but a source of life and inspiration that has birthed the character of entire civilizations:

How powerfully the sky over Greece affected its inhabitants! Where else but in the happy and beautiful region between the Euphrates, the Halys, and the Aegean Sea did the peoples who came to settle awaken so early to moral dignity and more tender sensibilities? And did not our forebears, when Europe was sinking into new barbarism, when religious zeal had suddenly opened the holy Orient, bring back once more from those gentle valleys gentler customs? The poetic work of the Greeks and the rougher songs of the Nordic tribes owe much of their individual character to the forms of the plants and animals, to the mountains and valleys that surrounded the poets, and to the airs that swirled around them.
Even Humboldt looked to Greece when he saw the world sinking into barbarism. A man who was closer to Nature than most can ever dream of—it's details, its whole, its language, its spirit—chose “Cosmos” for his ultimate description of the world around us, “in the Homeric ages, [it] indicated an idea of order and harmony... [and] was gradually applied to the order observed in the movements of the heavenly bodies, to the whole universe, and then finally to the world in which this harmony was reflected to us.” Humboldt’s writing was an evolutionary process in itself, “a process of never-ending adjustments and revisions, in which diverse pasts and presents permeate each other. His writing is restless, projecting events backward into the past and forward into the future; like his mind, his prose is always in motion.” Humboldt’s writing was as alive as he was and even breathes life into him well after his death.

It is also important to note that in each of our stories is also a story of relationships. All life needs relationships—all life is relationships. And Humboldt had Bonpland—an explorer, a naturalist, and a friend. Together, they traveled South America, sailed across oceans, met with royals and indigenous peoples, climbed mountains, fell ill, collected data, formed arguments. They shared their passions and their passion for knowledge—and the world is better for it. Some call this friendship, some call it solidarity, but it is life alive. We all need a Bonpland.

History—time—also gives perspective. Each of our individual lives is so incredibly short when coming from the cosmological, and historical, perspective. One night, after checking his defenses along the Peruvian border, Bolívar fell asleep into a feverish dream. When he awoke, he wrote *My Delirium on Chimborazo*. In the dream, time appeared to him: “I behold the past, I see the future, and the present passes through my hands. Oh, child, man, ancient, hero, why such vanity? Do you think your Universe matters?” Bolívar, humbled before him, asked what such a “wretched mortal” can do before Nature. Time replied, “Observe, learn, hold in your mind what you have seen. Draw for the eyes of those like you the image of the physical Universe, the moral Universe. Do not conceal the secrets heaven has revealed to you. Tell men the truth.” Through Nature, our descriptions of her, our relationships to her, our awe before her, we can find truth.

**A Living Nature**

We are not only tied to time, we are tied to one another, and to all of the diverse organic and inorganic matter that together makes life, “each organism as a part of the entire creation, and [we] recognize in the plant or the animal not merely an isolated species, but a form linked in the chain of being to other forms either living or extinct.” And in our diversity, there is unity, “a harmony blending together all created things, however dissimilar in form and attributes; one great whole animated by the breath of life.”

In Humboldt’s preface to his second and third editions of *Views of Nature*, he wrote that the dual purpose of his text was to “heighten the enjoyment of Nature through living depictions, while simultaneously increasing insight into the harmonious cooperative effect of forces according to the state of scientific understanding of the time.” Through the “combination of a literary with a purely scientific goal,” he aimed to speak to the imagination and increase knowledge. He saw the importance of inspiration and information, and how Nature provided both to those seeking it:

“Everything announces a world of active, organic powers. In every shrub, in the cracked bark of the trees, in the loose earth where live the hymenoptera, Life audibly stirs. It is one of the many voices of Nature, discernible to the solemn, receptive mind of humanity.”

And Nature was “an inexhaustible source of investigation,” “ever growing and ever unfolding itself in new forms,” where “each step that we make in the more intimate knowledge of nature leads us to the entrance of new labyrinths... the excitement produced by a presentiment of discovery, the vague intuition of the mysteries to be unfolded, and the multiplicity of the paths before us, all tend to stimulate the exercise of thought in every stage of knowledge.”

**A Living Law**

But we must find a way to bring this knowledge, these relationships, our humility, our awe, into our governance systems. We need a living law that represents the good and the just, the particular and the whole, but also one that evolves with knowledge and time. When nations are in upheaval, “calm can only be restored by a power that knows how to control events by itself initiating improvements out of a noble sense of its strength and its right.” Yet, “to improve a situation without causing upheavals, it is necessary to let new institutions grow from institutions that have evolved during centuries of barbarism.”

Humboldt knew that knowledge must seek some greater purpose—simply look at the themes he chose and the evolution of his body of work—to name a few titles, *Essay on the Geography of Plants* (1807) to expand our knowledge, *Views of Nature* (1808) to expand our senses and sensibilities to that
knowledge, *Political Essay on the Kingdom of New Spain* (1825–1827) to use knowledge and sensibilities to condemn inhumanity, *Personal Narrative of Travels to the Equinoctial Regions of America* (1844) to highlight the importance of bearing witness and sharing what you have seen, *Cosmos* (1845) to connect it all, and *Political Essay on the Island of Cuba* (1856) to connect it all for a purpose—to change unjust laws and inhumane systems of governance. Essays, views, political critiques, personal narratives—the cosmos itself—all a product of passion, purpose, and person.

George Perkins Marsh, who grew up reading Humboldt, and who so deeply and powerfully captured the harm being caused to Nature by man in *Man and Nature*, referred to Humboldt as the “great apostle of nature.” From the Greek *apostolos*, an apostle is a messenger that bears witness and sends forth to others what he has seen. An apostle is not just one who thinks, but one who acts: “a person who initiates a great moral reform or who first advocates an important belief or system.”

Inspired by Humboldt, Bolívar freed nations. John Muir, who desired to be “a Humboldt,” created the first national parks. Madison spoke passionately about the complexity and linkages of species and even the atmosphere when seeking new policies, and Jefferson not only argued against the global slave trade, but argued for stewardship through usufruct, or preserving the fertility of soil from landowner to landowner. Together, we must learn from Nature and the heroes of Nature; we must address the harms being done to humans and Nature; and we must transform our systems of governance for the protection of all life. Let us each aspire to be a Humboldt.

CONCLUSION
Humboldt is considered a father to environmentalism, but how closely are we following our founder? He was a man unafraid to blend care with thoughtfulness, passion with science, knowledge with mystery, and human governance with the human—and ecological—condition. He saw connections and dependencies everywhere, he saw the value of the particular and the whole, and he knew that we must look behind us to better understand our present and find guidance to our future.

We are in the midst of an existential crisis of our own making. We rationalize and empower greed. We ravage soils and souls. We allow the powerful to make decisions without wisdom. And in our search for the power to do good, we take away the power of words such as justice and morality, life and harmony. In that, we perpetuate harms for a harmful peace.

We cannot change our past, but we can change our path forward. Learning from Humboldt, we must not fear or avoid or silence what moves us; indeed, we must rely on it. The desire to learn more, protect more, see more is what motivates more. We must share stories of goodness, and of harm, as we have witnessed it. We must have courage to point out political and moral hypocrisies, those who claim to civilize or save through inhumanity.

We must acknowledge that the roots of harmful systems, of colonialism and slavery, remain today, just as deeply embedded as any of the plant systems that Humboldt documented. And we must see that the welfare of our human systems is directly related to the welfare of the systems of Nature.

Nature is our source of life, from our very breath to our eternal struggles for what is right and good—liberty, fraternity, and equality. Together, let us promote a living history—understanding that we, too, are history alive. Let us promote a living Nature—understanding that we, too, are Nature alive. And let us promote a living law—understanding that within each of us, individually and as one humanity, is the capability to create and adjudicate a law for life.

In Bolívar’s powerful fever dream, he “left Humboldt’s tracks behind and began to leave my own marks on the eternal crystals girding Chimborazo.” Let us pick up where this great man left off, where he guided us, where his words continue to guide us. Let us continue this living history in—and for—this beautiful living world.

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NOTES


7. This phrase is taken from von Humboldt’s Political Essay on the Island of Cuba, 91: “I have heard coldhearted discussions about whether it would be better for the owner not to wear out slaves with excessive work and have to replace them less often as a result, or to take from them everything possible in a few years and be forced to buy negroes bozales more frequently. Such are the rationalizations of greed when humans use other humans as beasts of burden!”


9. E.g., “Slaves were forced into celibacy under the pretext of avoiding moral disorder!” in von Humboldt, Political Essay on the Island of Cuba, 86; and e.g., “During our journey we could not escape conversations, in which the missionary pertinaciously insisted on the necessity of the slave-trade, on the innate wickedness of the blacks, and the benefit they derived from their state of slavery among the Christians!” in A. von Humboldt and A. Bonpland, Personal Narrative of Travels to the Equinoctial Regions of America, During the Year 1799–1804, vol. 1, trans. T. Ross (London: George Bell and Sons, 1907), 347.


12. E.g., “A recent visitor to the island commented that the landowners have no other care than to bury in their coffers the money that their overseers make and to exhuaste it for the card games and court cases that they pass on from one generation to the next”; in von Humboldt, Political Essay on the Island of Cuba, 85.

13. von Humboldt, Political Essay on the Island of Cuba, 137. Full quote: “The spirit of trade, carrying with it the cult of wealth, probably leads people to devalue what money cannot buy. Yet, human affairs are fortunately such that man’s most desirable, noblest, and freest qualities come from the soul’s inspirations and the intellect’s development and improvement. The cult of wealth, were it to seize all levels of society absolutely, would inevitably lead to the evil that those lament who look with sadness upon what they call the domination of the industrial system.”


15. See von Humboldt, “The colonial system’s hateful logic of safety founded upon enmity between castes, which has been propagated for centuries, is now exploding with violence”; in von Humboldt, Political Essay on the Island of Cuba, 146.

16. E.g., von Humboldt, “These dreadful calculations about the consumption of human beings do not even account for the number of unfortunate slaves, who either died during the Middle Passage or were thrown overboard like damaged goods”; in von Humboldt, Political Essay on the Island of Cuba, 148.

17. von Humboldt, Political Essay on the Island of Cuba, 305.


21. “Baron Humboldt on American Slavery,” The Anti-Slavery Reporter, vol. 6, third series (1858): 192. Humboldt’s voice “adds one more to the host of witnesses who have raised their voice in condemnation of this inequity.”

22. Ibid.

23. von Humboldt and Bonpland, Personal Narrative of Travels to the Equinoctial Regions of America, 257.

24. See von Humboldt, “Such is the composition of these societies established on the most fertile soil that nature can offer for the nourishment of men; such the management of agricultural enterprises and industry in the Antilles that, in the most fortunate climate of the equinoctial region, the population would fall below subsistence level without free and unimpeded foreign trade”; in von Humboldt, Political Essay on the Island of Cuba, 131.


Grummond, Simón Bolívar's Quest for Glory, (College Station: Texas A&M University Press, 2003), 238-40.


57. Ibid., 136.

58. Ibid.

59. von Humboldt, Cosmos, 26.

60. Ibid., 15.


62. Ibid.

63. Ibid, 147.

64. Humboldt and Bonpland, Personal Narrative, vol. 1, 181.

65. Humboldt, Cosmos, 25.

66. Ibid.


68. Ibid., 145.


72. J. Madison, Address to the Agricultural Society of Albemarle, May 12, 1818.


74. Bolivar, El Libertador, 135.
Prairie Grasses

JOHN HARRINGTON

For Paul Gruchow

Prairie Grasses

What if
Pasque flowers dwarfed you as you
Reclined under prairie stars
All heaven-scattered above prairie grasses
Infinite in their reach
Reminding you of your diminished
Insignificant role in a universal scheme of
things where
Even the prairie and the grasses are ever
changing

Where now can you see
Great horizon-sized bison herds, when what
Remains are only clustered preserves of an
Antique land that was carved into plough-sized plots
Sliced into fading fragments
Shorn of natural wealth
Ebbing from grass stems to corn stalks
growing beneath prairie
Sunshine, starshine, embedded in a prairie

Sky

Have you
Soared where Gulf warmth meets Arctic chill
Known by hawk and hopper
Yielding showers and sun for forbs, sedges
and grasses—home to prairie
Wind

Have you heard it
Whistle through seedheads
Implode among grass stems
Never stay in one place
Dance across distances limited only by the prairie

Horizon

Have you seen the
Heavenly, hellish receding line
Over prairie grasses
Reaching beyond reach
Infinity experienced
Zestfully
Ontologically
Naturally, sometimes clouded by prairie

Wildfire

Have you been there
When winter's melted snows
Inflowed prairie soils
Leaving aged grass
Dry as bison wallows and
Fast as pronghorns
Incendiary tongues
Raced across stale sod
Ending grasses fallow plight leaving prairie
Roots

Are you anchored by

Roots reaching deep into darkened soils
beneath the

Odor of hot metal from the drought-dry
dusty top-soil to

Organic layers damp and deliciously fecund
To catch nourishment
Seeping from wild fire ashes next to prairie

Potholes

Would you wade

Ponds and potholes left by
Olden glaciers’ graves midst rolling hills
Trysting places for waterfowl and shorebirds
Hidden in plain sight
Outside
Lying summer-still in the
Endlessly
Susurrating prairie

John Harrington lives with his wife and their two dogs at the eastern edge of 23,000 acres of Carlos Avery Wildlife Management Area in Minnesota. He writes poetry, nonfiction (sometimes creative), and takes photographs to reflect the beauty and wonder of Minnesota’s everyday special places. He is a graduate of Boston College with a major in English. His work was included as an inspiring poet in the book Flat Earth Diary, and can also be found in Digging to the Roots (2014 Edition), Talking Stick 23, Prairie Sampler (2012 Winner: Prairie Poetry Prize), and Minneapolis’ Star Tribune. His blog, my-minnesota.blogspot.com, has been featured often in MinnPost’s Minnesota Blog Cabin. He can be found on Twitter @JohnHthePoet and reached via email at johnrharrington@gmail.com.
Learning to See Nature,
Learning to Love Nature:
Lessons from Alexander von Humboldt

ELIZABETH MILLÁN BRUSSLAN

In a passage originally published in the exhibition catalog *An American Place*, one of America’s greatest painters, Georgia O’Keeffe (1887–1986), reflected upon the power of learning to see a flower:

A flower is relatively small. Everyone has many associations with a flower—the idea of flowers. You put out your hand to touch the flower—lean forward to smell it—maybe touch it with your lips almost without thinking—or give it to someone to please them. Still—in a way—nobody sees a flower—really—it is so small—we haven’t time—and to see takes time, like to have a friend takes time. If I could paint the flower exactly as I see it no one would see what I see because I would paint it small like the flower is small. So I said to myself—I’ll paint what I see—what the flower is to me but I’ll paint it big and they will be surprised into taking time to look at it—I will make even busy New Yorkers take time to see what I see of flowers.

Learning to see is a task we never finish. Like seeing a flower, seeing nature and the Earth that sustains it takes time. In *Leaves of Grass*, Walt Whitman asked his readers, “Have you reckoned a thousand acres much? Have you reckoned the earth much?” The great North American poet, writing these lines in 1855, was asking us to see the Earth, to appreciate it, to value it. Like a flower, like the Earth, to see nature, we need a guide.

As we celebrate the 250th anniversary of Alexander von Humboldt’s birth (1769–1859), we have occasion to revisit the gifts of guiding us to see nature that he so generously shared with us.

Humboldt served as a guide to nature. He balanced the empirical data of the phenomena of nature (the objective side) with an appreciation of the aesthetic elements of those phenomena (the subjective, perceptual side). Humboldt’s portraits of nature are exquisitely detailed accounts of the Latin American landscape, providing at once a detailed objective account of the natural environment as well as a sense of the beauty and wonder that he experienced during his voyage to the “equinoctial region of the earth,” as Spanish America was known at the time (1799–1804).

The *Naturgemälde*, a canvas or tableau of nature, was part of Humboldt’s lifelong attempt to achieve a *Gesamteindruck* (total impression) of nature. Humboldt’s commitment to preserving the “living breath of nature” required a nuanced balancing act. Humboldt attempted to balance a quantified, scientific presentation, with the free enjoyment of its charms and the awe of its power, i.e., an aesthetic presentation of nature. He believed that without empirical knowledge of nature, our aesthetic appreciation of it would be impoverished in significant ways. Yet to transform nature, “the realm of freedom,” into merely a set of quantifiable data points would strip it of its poetry and of its life force, and hence, it would be equally
problematic. In his canvases of nature (the Naturgemälde), we find systematic depictions of nature—that is to say, charts and graphs with factual information on the quantifiable aspects of nature. Nonetheless, Humboldt’s Naturgemälde resists the reductionist tendency of a raw or vicious empiricism that would kill the living breath of nature that Humboldt sought to preserve.

The Naturgemälde that Humboldt created in his writings on nature are best understood as literary acts of preservation—focusing on natural phenomena, while preserving the living breath of nature (lebendiger Hauch der Natur). Humboldt’s goal in his writings on nature, was a presentation of nature that would be as faithful as possible to his experience of nature’s beauty and its wonder. In short, Humboldt took on the task of a critique of nature. Humboldt’s task as a critic of nature was shaped by the constellation of ideas rooted in the ideas that shaped early German Romanticism, especially the romantic focus on merging the borders between poetry, science, and philosophy. This move to merge borders is part of a project aimed at overturning hierarchies: science and art are placed on equal footing; both are valuable guides in our quest to understanding nature’s meaning. In Humboldt’s work there is a balancing of the seriousness of the objective presentation of nature and the subjective aesthetic aspects of the same.

A good place to examine Humboldt’s reflections on the Naturgemälde is in the pages of his final work, Kosmos/Cosmos (written between 1843 and 1844, but published in 1845), which became the first scientific best-seller of the nineteenth century. The best place to enjoy the Naturgemälde is in the Views of Nature, which was recently issued in an excellent new translation by Mark W. Person, sensitively edited by Stephen T. Jackson and Laura Dassow Walls. As the editors tell us in the preface, Ansichten is a work that links “the sciences and humanities in [Humboldt’s] most personal and passionate published writings.” Yet “the two existing English translations, both published in 1849–50, took Victorian liberties with Humboldt’s prose and didn’t do justice to his vision or artistry.” The editors aptly describe Ansichten as a “seven-part hymn to the consilience of art and science.” This collection of seven essays on nature was, along with Cosmos, one of the few Humboldt wrote in German (the bulk of his writing was done in French), and it was close to his literary heart. A look at the portraits of nature that Humboldt presented to his readers will open a channel that enables us to continue his project of unifying science and the arts in our quest to understand and appreciate nature.

Kosmos, the last and never finished of Humboldt’s works, illustrates both key themes and methods in his work, in which he talks about his Naturgemälde. As Laura Dassow Walls reminds us: “Humboldt’s Kosmos did important cultural work for America. Though the multi-volume book published in English as Cosmos is known today (if it is known at all) as a popular science book about stars, that’s a little like saying Darwin’s Origin of Species is a book about breeding pigeons. Dassow Walls’ excellent and beautifully written study of Humboldt’s work, The Passage to Cosmos: Alexander von Humboldt and the Shaping of America, offers one of the deepest and most detailed analyses of Humboldt’s Cosmos.

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LEARNING TO SEE NATURE, LEARNING TO LOVE NATURE

Humboldt’s expressed goal in Cosmos is to “grasp nature as one great whole, moved and animated by internal forces.” In the preface to Cosmos, Humboldt explicitly asks what literary form could possibly do justice to this task. Humboldt’s concern with literary form is part of his abiding concern with how to effectively communicate with a broad public. He writes: “The very abundance of the materials which the ordering spirit should master, necessarily impart no inconsiderable difficulties in the choice of the form under which such a work must be presented, if it would aspire to the honor of being regarded as a literary composition.” Humboldt acknowledges that a full mastery of the abundant materials of nature will not be accomplished, but can be attempted. The ordering spirit to which Humboldt refers will be complemented by an appreciating spirit, so that in his Naturgemälde, order and control will join freedom and appreciation in the presentation of nature. Humboldt goes on to emphasize that descriptions of nature “ought not to be stripped of the breath of life” and so must avoid the “mere enumeration of a series of general results” and the “elaborate accumulation of the individual data of observation.” The mere accumulation of individual data points to quantify nature would indeed be wearying to the reader and would not do justice to the majesty of nature. To illustrate his point of what the description of nature ought to achieve, Humboldt refers to his earlier publication, Views of Nature. In Cosmos, Humboldt claims that the success of Views of Nature gave him hope that he could indeed present
Humboldt wanted to lead his readers to a greater appreciation for nature. Long before our present age of interdisciplinarity, Humboldt was well aware that certain concepts could best be approached by a perspective that drew from a variety of disciplines and methods, rather than just one. Humboldt wanted to free science from the narrow boundaries of the specialist and make it something that would be intelligible to all thoughtful people. He wanted to achieve a lively, colorful portrait of nature for his readers—one that would both educate and delight them. In this aspiration, we have a great resource that should inspire us in the present age—namely, the importance of communication in creating a bridge between humans and nature. The visionaries who see nature’s beauty and value and who want to share their vision must learn how to communicate it in a way that is compelling for a diverse audience. Humboldt was acutely aware of his audience when he wrote and quite annoyed by the failure of many of his contemporaries to engage the public. In Cosmos, Humboldt cites Goethe’s criticism of the dubious German “talent.” His writings were intended to cultivate within his readers a “genuine love of the study of nature.” Humboldt’s work as a guide to nature involved presenting the story of nature to his readers in a compelling way that paid tribute to both its empirical and aesthetic dimensions—to both its serious and its playful aspects. Humboldt never lost sight of the love for nature that inspired his work and that he hoped would inspire his readers, too.

In the preface to Cosmos, Humboldt charts the vision of nature that will guide his work—a vision intimately connected to the method of presentation that would best serve his reading public. The Naturgemälde are central to Humboldt’s task of presenting nature, so it is not surprising that, in the introduction to Cosmos, we are given several clear accounts of what precisely the Naturgemälde are. We are told that they are: ordered according to guiding ideas, not just to pleasantly occupy the spirit. Their sequence can also indicate the grades of the impressions of nature (Natureindrücke), which we have followed, ranging from the gradually increasing intensity from the empty, plantless plains to the inexhaustible fertility of the torrid zone.

As we immediately see, the Naturgemälde are associated with feelings of pleasure. They are meant not only to occupy our spirit in a pleasant way, but to present the empirical grades of nature’s diversity from the barren to the lush landscapes of the reaches of the Earth. Already in the preface to Cosmos, Humboldt explicitly states that his presentation of nature will be two-fold. He writes:

The first portion of [Cosmos] contains introductory considerations regarding the diversity in the degrees of enjoyment to be derived from nature and the knowledge of the laws by which the universe is governed, it also considers the limitations and the scientific mode of treating a physical description of the universe, and gives a general picture of nature which contains a view of all the phenomena comprised in the cosmos.

Like a landscape artist, Humboldt presents nature as a canvas that will illustrate the beauty of nature. According to Humboldt, a balanced presentation of nature is a goal of both the natural scientist and the landscape artist, and he sees common ground in both circles of thinkers. As he writes, “In scientific circles as in the carefree circles of landscape poetry and painting, the presentation of nature gains in clarity and objective liveliness when the individual elements are decisively grasped and delimited.”

Humboldt helped to correct this dubious German “talent.” His writings were intended to cultivate within his readers a “genuine love of the study of nature.” Humboldt’s work as a guide to nature involved presenting the story of nature to his readers in a compelling way that paid tribute to both its empirical and aesthetic dimensions—to both its serious and its playful aspects. Humboldt never lost sight of the love for nature that inspired his work and that he hoped would inspire his readers, too.

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The common ground between science and art to which Humboldt refers remains a fertile area of analysis for contemporary philosophers. In contemporary discussions of the aesthetic appreciation of nature, we are often taken back to the problem Humboldt brought into sharp focus so many years ago—namely, the role of empirical knowledge in our aesthetic appreciation of nature. Unfortunately, contemporary philosophers tend to neglect Humboldt’s valuable contributions to this issue. For example, Malcolm Budd opens his work The Aesthetic Appreciation of Nature with a detailed discussion of what kind of understanding of nature a robust aesthetic appreciation of it requires: this is precisely the sort of problem with which Humboldt grappled. More attention to Humboldt’s contributions to the problem of the role of knowledge in our aesthetic appreciation of nature would enrich the discussion we continue to have. In the context of discussing our aesthetic appreciation of nature, Budd writes:

Do we need the knowledge of the natural scientist—the naturalist, the geologist, the biologist, and the ecologist? Does experiencing something with ‘scientific’ understanding of it deepen or enhance the aesthetic appreciation of it? Does it matter aesthetically whether you correctly experience something as being a certain type of natural phenomenon or of natural kind K? Does it matter whether you mis-experience something as being of a natural kind? Does it matter whether you are not mistaken about but ignorant of the natural kind you are appreciating?... People have thicker or thinner conceptions of the nature of the phenomena which they see or otherwise perceive under concepts of those phenomena: children have exceptionally thin conceptions, adults have conceptions of greater and varying thickness. The thicker the conception, the greater the material available to transform the subject’s aesthetic experience of nature.... If you have the right kind of understanding of nature, you can recruit to your perceptual experience of nature relevant thoughts, emotions, and images unavailable to those who lack that understanding.16

Budd’s reference to the “right kind of understanding of nature” and his emphasis on the recruitment of “relevant thoughts, emotions, and images” to enrich the aesthetic experience of nature put him in close company with Humboldt’s project of cultivating the common ground between art and science. Humboldt would not put the problem in the terms used by Budd, but Budd’s clarity helps to highlight the sorts of issues with which Humboldt grapples and that he addressed, albeit more implicitly than Budd does, in his work. Humboldt’s presentation of nature helped “thicken” his readers’ conception of the phenomena of nature without ossifying its elements. He believed that knowledge of nature augmented our aesthetic appreciation of it, in part, because knowledge of nature—especially of the history of the phenomena of nature—helped the viewer make connections between the individual phenomena. This would allow the viewer to get at the whole or cosmos idea, which would help bring the idea of nature as the realm of freedom into sharper focus. One cannot comprehend nature unless one first sees nature in sharp focus, and scientific precision and aesthetic appreciation enable us to achieve that kind of focus.

Humboldt emphasized in his work that empiricism is vicious only when it is deployed as the only way to understand nature, a way to dominate the forces of nature and tell just one side of the story of nature’s meaning. Balancing our empirical knowledge of nature with our pleasure of nature’s beauty was one of Humboldt’s aims and part of his legacy as a guide to nature.

NATURGEMÄLDE AND THE UNITY OF NATURE

In Cosmos, Humboldt maintains that the pleasure we take in nature is the result of having arrived at or at least approximated a presentation of nature as a totality.17 In order to understand nature in its totality, and so to deepen our delight in it, we need a method that enables us to capture not only the empirical facts of the objects of nature, but also the individual elements of nature in a coherent way leading to a sense of nature’s whole. For Humboldt, the task of connecting the individual elements of nature into some harmonious whole was of high importance, for the meaning and value of nature could not be appreciated if the elements of nature remained a group of disconnected individual items. In Humboldt’s work we find a focus on the “general connection” (allgemeiner Zusammenhang) present in the phenomena of nature and his desire to grasp nature in its unity. The chain of connection that will lead us to the whole of nature is built of both knowledge of nature and appreciation for the phenomena of nature. Consider the following claim from Cosmos:

In considering the study of physical phenomena, not merely in its bearings on the material wants of life, but in its general influence on the intellectual advancement of mankind; we find its noblest and most important result to be a knowledge of the chain of connection, by which all natural forces are linked together, and made mutually dependent upon each other; and it is the perception of these relations that exalts our views and ennobles our enjoyments.18
Humboldt delineates two types of pleasure: 1) sensual or physical pleasure and 2) intellectual pleasure. He describes sensual pleasure in the following way: “One [sensual pleasure] arouses the open, childlike sense of humans, the entrance to free action and the dark feeling of unison, which dominate in the eternal change of nature’s silent drive.” So, on the one hand, the pleasure we have in nature is something primitive, an intuitive feeling, something sensual. This sort of pleasure is available, to speak with Budd, to those with even the thinnest conceptions of nature—young children finding pleasure in spring’s first bright red tulip, for example. But there is also the intellectual pleasure we take in the contemplation of nature, which “comes from the comprehension of the order of the world and of collaboration of the physical forces within the world.” This sort of pleasure, again invoking the lines cited above from Budd’s account, is a pleasure born of a thicker conception of nature, found in the experience of the mountainer who not only enjoys the thrill of the view from atop the Chimborazo, but who is also aware of the precise altitude of her vista point and is well aware of the mountain’s composition and history—facts that connect the vista to a history of the mountain and the mountain’s place within the history of the Earth, creating a connection between an individual experience of nature and nature as a whole (that is, the web of forces and phenomena comprising our experience of nature). Like Budd, Humboldt stresses the “right kind of understanding of nature,” as he puts it:

If we would correctly comprehend nature, we must not entirely or absolutely separate the consideration of the present state of things from that of the successive phases through which they have passed. We cannot form a just conception of their nature without looking back on the mode of their formation. It is not organic matter alone that is continually undergoing change, and being dissolved to form new combinations. The globe itself reveals at every phase of its existence the mystery of its former conditions (italics added).

The sort of recruitment of relevant thoughts, emotions, and images referenced by Budd finds company in Humboldt’s emphasis on creating a context that provides a fuller understanding of the phenomena of nature and their appreciation—both of which are elements of a just conception of nature. For Humboldt, the description of nature is “intimately tied with its history.” The history, science, and art of nature fuse in Humboldt’s writings, a fusion of disciplines that helps sharpen our vision of nature and our appreciation of it.

**THE ENDURING RELEVANCE OF HUMBOLDT’S CURRENTS**

Committed as he was to a presentation of nature that would not kill its living breath, Humboldt developed a literary tool that would present nature as both an empirical realm to be mastered, and as a realm of beauty and delight that was beyond mastery. We must step out of mastery to understand the full story of nature’s meaning, and Humboldt’s aesthetic turn is just such a move away from mastery.

One cannot comprehend nature unless one first sees nature in sharp focus, and scientific precision and aesthetic appreciation enable us to achieve that kind of focus.

Humboldt’s aesthetic courage in attempting to present to his European reading public scenes of nature that were utterly unfamiliar to them was bold and, if his endurably warm reception in the countries of Latin America is any indication, successful at wearing away at some of the troubling anti-American stereotypes that circulated widely in the late eighteenth century and well into the 1800s. Humboldt was able to transform some anti-American prejudices into an attitude of appreciation for the landscape of Latin America.

We must assimilate our knowledge of nature (be that knowledge of nature’s history or of its empirical data) into our aesthetic experience of nature. As Jerome Stolnitz points out, “merely to acquire knowledge is not enough and may even be detrimental to aesthetic appreciation.” Knowledge about something must be assimilated into our aesthetic experience of that thing, otherwise it remains aesthetically irrelevant. Knowledge of a given object, be that object a painting by Picasso or a flower in a field, is, to speak with Stolnitz, aesthetically irrelevant if that knowledge remains external to our aesthetic experience of the object. Intellectual recognition and aesthetic enjoyment of the phenomena of nature are assimilated in Humboldt’s *Naturgemälde*. Knowledge of nature plays a role in creating connections between phenomena, and when that knowledge of nature is assimilated into our aesthetic experience of nature, the level of appreciation deepens, and the project of approximating the whole of nature is further developed. A just conception of nature is achieved. Humboldt’s *Naturgemälde* blend enjoyment and knowledge of nature so that our knowledge of nature can deepen our aesthetic appreciation of it. Humboldt’s
Naturgemälde serve to guide the reader in her appreciation of nature, much the same way a good critic of art can guide the viewer of a work to a deeper appreciation of a painting's value. Humboldt helped his readers to see nature, teaching them, in much the way that O'Keefe's glorious paintings did, to see nature anew. These lessons are more relevant than ever. If we learn to see nature, to love nature, we will be well positioned to look at the many factors that threaten its survival, and then the necessary work of conservation and preservation can be done.

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NOTES


4. Ibid., vi.

5. Ibid., 1.


7. A. von Humboldt, Cosmos: A Sketch of the Physical Description of the Universe, trans. E.C. Otté (Baltimore, MD: Johns Hopkins University Press, 1997), 24. All English language references are to this edition, hereafter Cosmos. I have often, for the sake of greater precision, modified the translation (indicated by “translation modified”) or simply translated the passage anew when I have found the Otté translation wanting (indicated as “my translation”). The German references to Kosmos are to A. von Humboldt, Kosmos. Entwurf einer physischen Weltbeschreibung, 5 Bde. (Stuttgart/Tübingen, Germany: J.G. Cotta, 1845-1862). See also Humboldt, Cosmos, 7, translation modified. “Die Natur als ein durch innere Kräfte bewegtes und belebtes Ganzes aufzufassen” (Humboldt, Kosmos, vi).

8. Ibid., 8-9, translation modified.


10. Humboldt, Cosmos, 9, translation modified.

11. Humboldt, Cosmos, 47.

12. Humboldt, Cosmos, 12/Humboldt, Kosmos, xv.


14. Humboldt, Cosmos, 10, translation modified.

15. Humboldt, Cosmos, 34, translation modified.


17. Eberhard Knobloch has analyzed the relation between pleasure and the portraits of na-


18. Humboldt, Cosmos, 23.

19. Humboldt, Cosmos, 24, translation modified.

20. Ibid.

21. Humboldt, Cosmos, 72.

22. Humboldt, Cosmos, 72.

Editor’s Note: Thomas Berry (1914–2009) was one of the twentieth century’s most prescient and profound thinkers. As a cultural historian, he sought a broader perspective on humanity’s relationship to the Earth in order to respond to the ecological and social challenges of our times. Berry began his studies in Western history and religions and then expanded to include Asian and indigenous religions, which he taught at Fordham University, Barnard College, and Columbia University. Drawing on his explorations of history, he came to see the evolutionary process as a story that could help restore the continuity of humans with the natural world. Berry urged humans to recognize their place on a planet with complex ecosystems in a vast, evolving universe. He sought to replace the modern alienation from nature with a sense of intimacy and responsibility. Berry called for new forms of ecological education, law, and spirituality, as well as the creation of resilient agricultural systems, bioregions, and ecocities. The selection below is from Thomas Berry: A Biography (New York: Columbia University Press, 2019, 149-154). (Reprinted with permission of Columbia University Press.)

LAW: EARTH JURISPRUDENCE

Berry also suggested that law needed to be included in these discussions of creating a flourishing future for the Earth community. One of Thomas’s major contributions to the Great Work was his articulation of the principles and philosophy of Earth Jurisprudence. He originated the term and explained its key concepts over many years. A Gaia Foundation report acknowledges: “Earth Jurisprudence is the term first used by cultural historian Thomas Berry to name the philosophy of governance and law, in which the Earth, not human interests, is primary. It accepts that humans are born into an ordered and lawful Universe, to whose laws we need to comply if we are to be a benign presence on Earth.”

Thomas had an interest in jurisprudence from the time of his doctoral thesis on Giambattista Vico, who felt that jurisprudence provided the surest insight into the mores, customs, and worldview of a people. In 1988 in The Dream of the Earth, Thomas noted: “The [contemporary] legal system is especially deficient in its inability to deal with questions of human–Earth relations.” He acknowledged the need to understand the integrity of ecosystems and to protect the inherent rights of all living beings. In 1999 in The Great Work he wrote:

Especially as regards law, we need a jurisprudence that would provide for the legal rights of geological and biological as well as human components of the Earth community. A legal system exclusively for humans is not realistic. Habitat of all species, for instance, must be given legal status as sacred and inviolable.
Finally in 2006 Thomas’s major statements on Earth Jurisprudence were published in *Evening Thoughts*: “Legal Conditions for Earth Survival” and “Ten Principles for Jurisprudence Revision.” Thomas developed these ideas over several decades in conversation with others.

The starting point...is recognizing that the laws of the Earth are primary. They govern life on the planet, and human laws should be derived from these.

As he saw it, even the United States Constitution is fundamentally flawed by reserving all rights for humans and recognizing none for nature. For Thomas, the deficiency cries out for a fundamental transformation of our modern ideas of law. At the heart of this transformation, he noted, is the shift from a human-centered to an Earth-centered understanding of our relationship with the larger community of life. A profound change in perspective, he felt, would enable humans to recognize and protect the inherent rights of the natural world. The legal scholar and historian of religions Brian Brown has called this the revolution of law from a focus on order to a focus on justice. Brown writes: “The self-regard of human law, long proprietized and extensively commercialized, has rendered it insensible and mute to the cataclysm that terminates the Earth in its florescence.”

**ARTICULATING A PHILOSOPHY OF EARTH JURISPRUDENCE**

Given that the prevailing jurisprudence system does not protect other species or components of the living Earth, Thomas asked, what would a different system look like? He pointed to various sources of inspiration, namely nature herself and indigenous peoples’ understanding of law. The starting point, he said, is recognizing that the laws of the Earth are primary. They govern life on the planet, and human laws should be derived from these. This is clear for indigenous peoples whose customary laws and governance systems are rooted in the understanding that nature regulates the order of living processes in which humans are inextricably embedded. Thus, to maintain health and well-being for people and the planet, humans need to comply with the dynamics of nature. For indigenous peoples the relationship between land and species is regarded as sacred and involves reciprocity.

That nature has rights within this worldview is not difficult to affirm, because every component of life is an interdependent dimension of the web of life, with inherent rights to exist. But since the language of rights evolved in a modern context, Thomas felt that humans need to acknowledge these biases in recognizing rights in a more-than-human context. These biases include a modern anthropocentric perspective, the objectification of the natural world, a view of the world as inert or even dead, and the assumption of human domination that emphasizes a use relationship with nature in the current industrial system.

Thomas was inspired early on by Christopher Stone, a law professor at the University of Southern California. Stone was one of the first to call for judicial reform, with his groundbreaking book, *Should Trees Have Standing? Towards Legal Rights for Natural Objects* (1974). Stone argued for the rights of natural objects (trees) or ecosystems (forests, oceans, rivers) to have legal standing and to be represented by guardians to protect them, just as corporations and charitable trusts have legal representatives. He felt that these natural objects or systems should be recognized for their own worth and dignity, not merely their benefit to humans.

Thomas drew on this position of the inherent value of nature and of natural processes:

> Every being has rights to be recognized and revered. Trees have tree rights, insects have insect rights, rivers have river rights, mountains have mountain rights. So too with the entire range of beings throughout the universe. All rights are limited and relative.

Thus Thomas emphasized that: “Every component of the Earth community, living and non-living, has three rights: the right to be, the right to habitat or a place to be, and the right to fulfill its role in the ever-renewing processes of the Earth community.”

This position has been foundational for many of those involved in formulating and making operational an effective rights of nature approach rooted in Earth Jurisprudence. Similar perspectives have arisen in the contemporary period with scientific understanding of the interdependence of Earth systems, particularly in ecology. Thus, by drawing on both indigenous and scientific knowledge, Earth Jurisprudence is arising to respond to the needs of the larger community of life.

**EMERGING DEVELOPMENTS OF EARTH JURISPRUDENCE**

Groundwork for the articulation of Earth Jurisprudence emerged with the United Nations’ *World Charter for Nature* in 1982. This was further developed with the *Earth Charter* issued in 2000 and the *Universal Declaration of the Rights of
Mother Earth in 2010. Thomas was especially appreciative of the World Charter for Nature. He felt it embraced a dynamic bio-centric perspective, and he built on this in his early articulation of the rights of nature.

In this spirit, in 1984 Thomas urged the Gaia Foundation in England to commit to the protection of biological and cultural diversity, restoration of healthy ecosystems, and support of indigenous peoples, especially in the Southern hemisphere. Inspired by a workshop led by Thomas more than a decade later at Schumacher College in 1996, the Gaia Foundation launched an Earth Jurisprudence initiative. This initiative involved a commitment to explore, develop, and promote pathways to affirm that Earth-derived law take precedence over human law to protect the well-being of all components of the Earth community.

“Every component of the Earth community, living and non-living, has three rights: the right to be, the right to habitat or a place to be, and the right to fulfill its role in the ever-renewing processes of the Earth community.”

In April 2001, the Gaia Foundation and Andrew Kimbrell, founder of the Center for Food Safety, organized a conference with Thomas Berry at the Airlie Conference Center outside Washington. A group of people involved with both law and with indigenous peoples came together from South Africa, Colombia, Britain, Canada, and the United States. One of those in attendance was the South African lawyer, Cormac Cullinan, who was inspired and encouraged by Thomas and the Gaia Foundation to write his path-breaking book, *Wild Law: A Manifesto for Earth Justice* (2002). In the foreword, Thomas calls for the need for explicit legal protection of the larger Earth community. In December 2002 Thomas delivered this message in his plenary talk to an international conference on Earth Jurisprudence at Pace University Law School and its Academy for the Environment. Robert Kennedy, Jr., an environmental lawyer at Pace, was particularly influenced by Berry’s thinking. The following year, in October 2003, Thomas delivered the E. F. Schumacher Lecture in Great Barrington, Massachusetts, titled “Every Being Has Rights,” which was received with enormous appreciation.

In 2002, an African regional network was formed—the African Biodiversity Network—with one of its major priorities being to revive indigenous knowledge systems and their Earth Jurisprudence underpinning, inspired by Thomas and supported by the Gaia Foundation. In 2005, the Nobel Laureate, Wangari Maathai, and her legal adviser, Ng’ang’a Thiong’o, campaigned, as advised by Thomas, to incorporate an Earth Jurisprudence preamble in the new Kenyan constitution.

In the fall of 2006, a major step forward in institutionalizing Earth Jurisprudence occurred with the creation of a Center for Earth Jurisprudence (CEJ) at the Schools of Law at Barry University and St. Thomas University in Florida. Sister Patricia Siemen, an environmental lawyer and professor, was the founder and first director. Drawing on Berry, she has written on Earth Jurisprudence in a cosmological perspective. The establishment of the Center was inspired by “the processes and laws of the natural world that sustain all life forms, the writings of Thomas Berry and other environmental philosophers, lawyers and scientists, and the reverence and care for all of creation.” In April 2007, the Center sponsored a conference called “Defining the Field and Claiming the Promise” at St. Thomas University School of Law in Miami. Two of the keynote speakers were influenced by Berry—namely, Cormac Cullinan and Liz Hosken—along with Thomas Linzey, co-founder of Community Environmental Legal Defense Fund, who has made significant contributions to this movement.

In 2008 the Center for Earth Jurisprudence created the Earth Law Center. Its first Executive Director, environmental attorney Linda Sheehan, advanced passage of new rights of nature laws, advocated for rights of rivers to flow, held local rights of nature tribunals, promoted rights of nature before the United Nations, and developed and taught an “Earth Law” class at Vermont Law School, and offered specific strategies to address the growing number of “co-violations” of nature’s rights, human rights, and the rights of indigenous peoples.

**MILESTONES IN IMPLEMENTING EARTH JURISPRUDENCE**

Thomas’s notions of the rights of nature required the transformation of the dominant legal philosophy and principles, widening their ethical perspective to include the whole Earth community of which humans are a part. He often spoke of the need for principles, strategies, and tactics for transformation of individuals, society, and institutions. He and others realized that strategies and tactics leading to the enactment of the rights of nature would be difficult, but contrary to expectations, several significant breakthroughs have occurred. These began the year before Thomas died and have continued since.
In 2008 Ecuador adopted the rights of nature into its new constitution. Article 71 reads “Nature, or Pacha Mama, where life is reproduced and occurs, has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes.”

In 2009, the United Nations General Assembly proclaimed April 22 as International Mother Earth Day. In so doing, member states acknowledged that the Earth and its ecosystems are our common home. The same year, the General Assembly adopted its first resolution on harmony with nature.

On April 22, 2010, World People’s Conference on Climate Change and the Rights of Mother Earth in Cochabamba, Bolivia, approved the Universal Declaration of the Rights of Mother Earth. Over thirty thousand people attended, representing more than a hundred nations. The vast majority present were indigenous peoples, especially from Latin America. As a follow up, in September 2010, individuals and organizations from four continents gathered in Patate, Ecuador. Out of this four-day meeting, the Global Alliance for Rights of Nature was formed.

In December 2010, the first indigenous President of Bolivia, Evo Morales, and Bolivia’s Plurinational Legislative Assembly established the Law of the Rights of Mother Earth. The Law defines Mother Earth as “a dynamic living system comprising an indivisible community of all living systems and living organisms, interrelated, interdependent, and complementary, which share a common destiny.” It calls on all people to “respect, protect and guarantee the rights of Mother Earth,” which is considered sacred in the worldview of Indigenous peoples and nations.

Several other watershed moments have emerged in the rights of nature movement. These include the adoption by the International Union of the Conservation of Nature (IUCN) at its 2016 meeting in Hawaii of a resolution calling for no development or extractive industries in Sacred Natural Sites and Territories and the recognition of customary governance systems. The IUCN also committed to the rights of nature in its Resolution 100 (2012) and included action on rights of nature in its 2017–2020 work plan.

In New Zealand, the Whanganui River was the first in the world to receive legal personhood through a law passed on March 16, 2017. This was followed on March 21 by court recognition of legal personhood for the Ganges and Yamuna Rivers in northern India. Rights of nature legal provisions also now exist in Colombia, Mexico, and dozens of municipalities in the United States, and are being debated in a number of other nations. Education in Earth Jurisprudence is also emerging. In April 2018 the Colombian Supreme Court ruled that the Amazon must work against deforestation and the country as a whole must be protected from the effects of climate change. In this ruling the Colombian Amazon is granted personhood and thus is regarded as an entity with rights. This is the first such ruling in Latin America.

The Law defines Mother Earth as “a dynamic living system comprising an indivisible community of all living systems and living organisms, interrelated, interdependent, and complementary, which share a common destiny.”

Thomas’s contribution to this growing movement was his articulation of the principles of Earth Jurisprudence, which has influenced many individuals and organizations working to promote the rights of nature both in theory and in practice. Thus, in the areas of law and religion, as well as in other fields such as education and economics, Thomas made significant contributions to actualizing the Great Work. His Teilhardian evolutionary context has been vital to this effort. As Thomas made his transition from Riverdale back to Greensboro, he continued to inspire other creative projects to emerge.

Mary Evelyn Tucker and John Grim teach at the Yale School of Forestry and Environmental Studies and the Yale Divinity School, where they direct the Yale Forum on Religion and Ecology. They worked closely with Thomas Berry for over thirty years as his students, editors, and literary executors. Berry was a major inspiration for Journey of the Universe. With Brian Thomas Swimme, Tucker and Grim created this multi-media project that includes a book (Yale, 2011), an Emmy Award winning film, a series of podcast Conversations, and online courses from Yale/Coursera. In 2019, the International Society for the Study of Religion, Nature, and Culture selected them as recipients of the Lifetime Achievement Award. Andrew Angyal is professor emeritus of English and environmental studies at Elon University. He is also the author of Loren Eiseley (1983), Lewis Thomas (1989), and Wendell Berry (1995).

NOTES
1. This is confirmed by Mike Bell: “The need for a new jurisprudence was first identified by Thomas Berry who described destructive anthropocentrism on which existing legal and political structures are based as a major impediment to the necessary transition to an ecological age in which humans would seek a new intimacy with the integral functioning of the


3. “The outstanding thing about this work of Vico is that he was still dominated by his interest in jurisprudence even while he was attempting the difficult task of unifying philosophy and philology. At this time in his career he wished to show that the union of all divine and human knowledge was the work of jurisprudence, which used both philosophy and philology in the full understanding and exercise of its function.” T. Berry, The Historical Theory of Giambattista Vico (Washington, DC: Catholic University of America, 1949), 51.


5. Ibid. 104.


10. Berry, Evening Thoughts, 149.

11. The UN Harmony with Nature website lists experts who are committed to Earth Jurisprudence: http://www.harmonywithnatureun.org.

12. In 1992, at the Earth Summit in Rio, the United Nations issued the Convention on Biodiversity, which helped support this perspective.


19. Some ten years later, on October 27, 2017, a “Rights of Nature Symposium” was held at Tulane University Law School. It was subtitled “Driving Rights of Nature into Law—Opportunities, Risks, and Obstacles.” It was organized by Thomas Litzey and sponsored by his Community Environmental Legal Defense Fund, www.celdf.org, accessed January 11, 2020.


21. It is important to note that not all of the aspirations have been achieved in Ecuador. See N. Pathak Broome and A. Kothari, “A Green Revolution Runs into Trouble,” Resurgence, no. 21. It is important to note that not all of the aspirations have been achieved in Ecuador. See N. Pathak Broome and A. Kothari, “A Green Revolution Runs into Trouble,” Resurgence, no. 21.

22. In subsequent years, Maria Mercedes Sanchez has been a leading force in the UN Harmony with Nature initiative, organizing annual Interactive Dialogues of the General Assembly; http://www.harmonywithnatureun.org/

23. It has also figured prominently in several International Rights of Nature Tribunals, the first of which was held in January 2014 in Quito, Ecuador. This was followed by International Tribunals in Lima, Paris, and Bonn, all held during the COP climate conferences, and Regional Tribunals held in Quito in Ecuador, in San Francisco and Antioch, CA, in the United States, and in Brisbane in Australia.


25. New Zealand’s Te Urewara National Park had been granted the same legal status in July 2016.

I find it mesmerizing that we can so simply conjure the ocean. As if our bodies carried still the original rhythm of our world: that of the ocean.

I wasn’t after this kind of thinking when I did my fieldwork at the Ballena National Marine Park in Costa Rica’s South Pacific. At the time, I was more interested in the concept of the boundary, that imaginary line separating a protected from an unprotected area—the way it is used and how it affects the humans-landscape relationship in place. But somehow, this led me to rhythms and temporalities: to think about the temporal organization under which the institution “protects nature,” and its implications on its perception of the agency of the landscape. You see, normally, a national park is thought to have a spatial logic: bounding a territory for protection. A logic usually performed through fences and uniforms. But after repeatedly watching the rangers’ routines, mechanically stamping one ticket after the other, opening the gates at 7 a.m., closing them at 4 p.m., counting the daily income, filling the accounting books, and so on, I intuitively started to think about the institution through its temporal logic. I realized that designating the area as a national park had ushered in the clock-rhythm of modernity and this, in my view, had had serious implications on how the institution perceived nature.

Henri Lefebvre once described clock-time as a “time that thinks itself.” It is, according to him, an abstract, desacralized, and quantitative form of time that rose victorious in the capitalist era because it supplied the measure of the time of work, allowing capitalism to assign an exchange value to it. Similarly, Barbara Adam—author of Timescapes of Modernity—has noted how “clock time is based on the principle of repetition without change.” This means that the clock disembeds itself from contextual rhythms, from the transient condition of life, and so it renders a notion of time as “outside of place.” As such, it can be standardized and applied anywhere at anytime, with no distinction to the embodied experience of each place. The clock pays no attention to any other rhythm but its own ticking. Positioned above life itself, it controls, measures, and commodifies.
So what does it mean for an institution that claims to manage and protect a landscape to adopt such a time? Ballena offers a very clear example. The implementation of the spatial logic of the park was effective at handling a simple cause-effect issue: local fishermen were allegedly damaging the coral reef and overexploiting the fish resource. A limit was set—traced on the sea—and fishermen were forced out, not without a fight, until they eventually gave in and transitioned into whale-watching tourism. However, over time, the main threats the place faces have changed drastically. Tourism development has brought more construction in the area and with it sediment removal. Although the construction projects happen outside the park, the river eventually washes sediments into its ocean, affecting the coral reef. In fact, any impact along the river basin, like littering or logging, has eventual repercussions for the sea.

Also, climate change has increased the temperature of the water dramatically, affecting the corals, too, and causing changes in the fish migration patterns—lately, there has even been speculation that warmer waters may mean that whales won’t need to come all the way down to Costa Rica to reproduce, which jeopardizes the livelihoods of local tour operators.4

Rising seas are another of the evident effects of climate change in the park: the signposts originally established fifty meters away from the high-tide line are being washed away today.5 But none of these factors have led to changes in the functioning of the park. Under the finite spatial organization, all these problems fall out of the park’s jurisdiction. Under the temporal organization, all of these problems are ignored by the self-absorbed clocktime. That is to say, the temporal design of the park is unable—and I would add unwilling—to acknowledge the fact that the landscape changes across time. More than twenty years ago, the park was created under a logic of delimitation and control, but time has proven that most of the things in the park are neither static nor predictable. In other words, the clock-logic of the park doesn’t know what to make of the latent, unpredictable changes of a responsive, interconnected, world-making landscape.

The temporality imposed by the thinking behind the management of the park has altered the ways in which locals and tourists can interact with the space of the park, and it has allowed time to be commodified. Rangers have shifts, tourists have visiting hours. The fishermen that once stayed at sea for several days now have a temporal window to operate their tours, which also have a fixed route and duration. It is an organization that assumes everything around it to be inert and fixed in time, a temporal organization concerned mainly with the park’s productivity—i.e., with money.

Yet beyond the institution of the national park, more endogenous rhythms resist the imposition of this abstract, desacralized clock-time. Through the embodied ways in which many locals relate to the place and through those dedicating years of their life to understand the place, another story arises. It is a story of a landscape in constant flux, an animated place that participates daily and throughout millennia in the shaping of the place.

Every afternoon, after clearing the tasks of the tour, Fernando (one of those fishermen-turned-tour-operators) heads to the beach to spend his free time fishing from the shore or in the river mouth. We had agreed that he would let me know when he was going fishing so I could film him. Several times, however, I received a call from him canceling the plan because the sea was too choppy to fish. Finally, one morning, the sea was permitting. By the time I got there, Fernando was already throwing and rolling back his rod repetitively. With the water up to his knees, he continuously negotiated his balance with the waves. I spent about an hour observing and filming Fernando as he cyclically tossed his rod, rolled it back, aligned it, then tossed it again, all the while swaying his way among the waves. As he danced his rod back and forth, he remarked several times that the sea was rough, yet he remained completely calm, moving as the sea requested. I slowly became absorbed with the consistent cycle of the rod, the whooshing of the thread against the wind, the mechanical sound of the rolling, and Fernando’s attentive care for his craft. Several times during my fieldwork I encountered this kind of rhythm in the leisure activities of the locals. In these activities, there was a sense of self-indulgence while also a will to surrender to the passing of time and the conditions of the landscape. Absorbed as I was, the waves kept calling me back to the surrounding, as I, too, negotiated my balance. At an arbitrary moment, Fernando came out of the sea and told me he was done for the day. He didn’t seem the least disturbed about the fact that he hadn’t caught anything. However, he did mention that some years ago after an hour of fishing like that he would have come out with several fish, but now the fish populations were falling.

Through their days as fishermen, Fernando and other locals I met developed an experiential knowledge about the surroundings. Fernando told me how, as fishermen, they came to recognize the silhouette of the coastal landmarks at night in order to navigate in the darkness. Mario Vargas, whom I met while he was thread-fishing by the shore, explained how different shapes of waves made it easier or harder to get the thread deep
enough and remarked the importance for fishermen to learn the sites where each kind of fish aggregated. Explanations like these abounded among former fishermen, and they usually included giving the sea personality traits such as “angry,” “stubborn,” “grumpy,” or “moody.” Without giving it much thought, these accounts attributed certain agency to the surroundings, regarding the environment as alive or conscientious. An embodied experience of the place has given Fernando, Mario, and others the ability to perceive the landscape changing daily and across time. Unlike the clock-logic of the park, this situated knowledge allows them to recognize the possibility of change and to constantly adapt to it.

Filming Fernando and other informants in their leisure time and listening to their accounts of the landscape enhanced my sensorial attentiveness toward the place. It offered me a different attitude from that of the clock-time logic I had encountered in the rangers’ routines. So I started to explore materiality with the same patience I had seen Fernando employ while tending to his rod. The rocks and the sea became my muses. Strata and tides suggested a timeline well beyond the national park. Wanting to know more about the story these rocks and this sea could tell me, I contacted a geologist. César Laurito was about to add deep time to the plot, in an epic tale that would make it impossible to think of rocks or the sea as inanimate.

Approximately 110 million years ago, an arch of volcanic islands began to emerge from the Pacific Ocean close to today’s equator. This was due to a process known as subduction: thousands of meters below the surface of the sea the oceanic bottom fragmented into two parts; one of those fragments pushed itself beneath the other, reaching depths of high temperatures, and thus melting into magma. Rising powerfully, magma broke the crust above it, turning into lava, which then turned into rocks as it cooled off. New submarine mountains had begun to emerge. As they grew, they lifted themselves slowly out of the sea, one layer at a time. The islands forming an arch had surfaced—the territory that constitutes what we know today as Costa Rica and Panama.

As the islands rose, currents in Earth’s mantle slowly moved them, carrying them in a millenarian journey through the Pacific Ocean up to the place where they are today, a space between two otherwise unconnected lands. Initially a set of
volcanic islands, the arch formed a shallow sea between North and South America’s territories. But the arch continued to rise, until it completed the isthmus we know today. This territory is still shaped, and its climate strongly influenced, by the ocean around it. Subduction makes this bridge tremble to this day, and as the arch continues to rise, the sea around it shapes it continuously at its edges, where land and tides meet.

It is easy to see this territory as a bridge between North and South America, but it is not so common to shift that perspective and focus on how this bridge had an even deeper geological implication as a separator of two oceans, re-routing currents in both of them. In a geological perspective that looks beyond the human story, my country’s territory has been ocean bottom for way longer than it has been land. And it was more captivating still to hear Laurito narrate all this in the present tense, recognizing this million-year process as an active and continuous one:

Actually, we have 110 million continuous years and we are still traveling, it is still deforming. And it is getting in between North and South America. So it is a process that began 110 million years ago, and that I think will continue for many million years.6

My encounter with Laurito left me no doubt that Costa Rica was essentially oceanic; yet when I look at environmental, educational, and cultural policies, the ocean seems absent from the national concerns. Even I admit that before I did my fieldwork, I didn’t know that Costa Rica’s marine territory is around nine to eleven times larger than its land territory (due to the fact that Cocos Island belongs to Costa Rica). Biologist José David Palacios stated it plainly:

It seems to me that Costa Rica has always been very focused on its terrestrial part. When I was in school, they used to say Costa Rica has an area of 51,100 square kilometers; and it has its borders to the north with Nicaragua, to the south with Panama, in the north with the Caribbean Sea, and in the south with the Pacific. So it was somehow a vision that we are a small piece of land. But actually, we are close to 90% sea surface, and the rest is the terrestrial part.
We have borders with countries that sometimes people don’t even believe, we have a border with Ecuador and we have a border with Colombia. So it seems to me that it is necessary to make a change of vision. Costa Rica needs to put their eyes on the sea.7

If one looks at the politics of conservation, this phenomenon of neglecting the ocean persists. The government of Costa Rica constantly boasts (fairly enough) about the fact that 26.4 percent of its continental territory is made up of protected areas. However, when it comes to the sea, only approximately 1.7 to 3 percent8 of Costa Rican seas are protected.9 Ballena was in fact the first marine protected area of the region, and it wasn’t established until 1991. And even when there is protection on paper, in practice things might be different—like in Ballena, where there’s not even a boat with which to conduct patrols. Rangers, who work under precarious conditions and whose time is dedicated mainly to ticket sales, express deep dissatisfaction about their role.10 In fact, many locals in Ballena maintain that setting stations on land along the beach had more to do with profiting than with protecting, and they find it ironic that there is no actual protection at sea.

In both the official statements and the institutional practices of the park, I encountered a lack of connection with the sea. But this is not the case for those who, one way or another, come in contact with the materiality of the place. Be it Fernando who fishes at the shore every time the sea allows him, or Laurito who “reads” the codes of history left in the rocks, matter matters. They take seriously their relationship to materiality and, not simply as figures of speech, they think of the water and the rocks as part of their identity and as intrinsically linked to their histories and daily lives. Across time and through their own bodies and senses, these persons have come to acknowledge that their surroundings present changing behaviors, and they have learned to pay attention to the materiality to be aware of these changes, sustaining very particular and situated relations to the place. Antonio Quesada, a former fisherman and one of the few informants I met who had been born and raised in the area, even claimed to be able to predict the sea’s behavior just by the way it sounds:

I was born here, and we have always lived near the beach.... So you learn this. Old people back then were very [pointing to his forehead]... my dad was very [pointing again to his forehead]... “Listen!”—he would say the day before—“Tomorrow the sea will wake up angry.” So, I would ask “why, daddy?” “Well, listen, he” is changing his sound.” So you would learn through their situation. And no kidding, the sea would wake up angry. So that way you learned. And then, well, I have worked at sea my whole life.... I hear him [the sea] when he changes his noises.... The wind makes him noisy. And when there’s a big tide, he changes the wave stroke, ‘cause the waves are bigger. He gets angrier so he changes his sound. It sounds totally different. He rumbles: “ruum.” As the wave falls: “ruum.” As a stroke, as an echo. It sounds very loud.”12

Through listening, through fishing with water up to the knees, through brushing rocks in search of clues—that is, through a sensorial and corporeal encounter with materiality—all these persons have noticed and taken seriously this materiality, rendering the sea and the rocks active, with their own trajectories, and even respecting their capabilities that escape human understanding. All these informants expressed, in their own ways, a regard for the sea and the rocks as lively and exhibiting a certain agency.

It was no surprise, then, when I started asking people around the park what they imagined would happen to the place in a thousand or a million years, that their imaginaries were filled with a “reclaiming” sea. Local residents, rangers, biologists working in the area, and even visitors have noticed that the sea is rising every year. Some gave an explanation of rising seas as an effect of climate change; others simply used phrases like “the sea is taking what is his.” Most of these attitudes are based on empiricism. They are conclusions drawn from what these people have experienced over time as they relate to the materiality of their surroundings. They have to notice and care about what the sea and the rocks do because their craft, their profession, their knowledge about the world, and simply their daily lives are contingent on the trajectories of these things. Their position, therefore, is not of mastering or administering these materialities, but instead it is one of observation across time, cooperation, and, mainly, adaptation to a land and sea they know to be in constant change.

As an exponent of the “new materialism” in philosophy, Jane Bennett’s ethical project underlines the importance of sensing the world in order to care for it. She believes that the image of dead or instrumentalized matter feeds a position of conquest and consumption, because it prevents us from “detecting (seeing, hearing, smelling, tasting, feeling) a fuller range of the nonhuman powers circulating around and within human bodies.”13 Tapping into the sensuous, situated, and emotional relationships that already exist in the area—those capable of detecting non-human powers—should be, in my opinion, the starting point for designing an institution that actually cares
about protecting the place, and not just profiting from and controlling it. This would be an institution that transcends the bounding structure of the bureaucratic clock logic, an institution that facilitates for its personnel and the community the conditions required in order to pay serious sensorial and corporeal attention to the multi-rhythmic bodies that make up the landscape. This is necessary if they are to better respond to its changes and needs.

Once we understand that everything is becoming, that we live in an animated world, that everything around us has world-making abilities that manifest at different rhythms, then protection can no longer be a matter of “preserving,” as if the world were a natural museum. Things change. They respond to our actions, although maybe not immediately. Under a multi-temporal mindset, attuned to the many rhythms to which this planet beats, conservation is a matter of cultivating responsive relationships that can hold space for wildness, where wildness is understood as in the words of Vandana Shiva: “an ability to self-organize and evolve on your own terms.”14

And I would add, with your own rhythms. As scholars Thom van Dooren and Deborah Bird Rose note, what it means for each being or thing, in each case, to respond to the world around them may be quite different, but nonetheless, it is through these responses that worlds are constituted.15

There is no singular “responsible” course of action; there is only the constantly shifting capacity to respond to another.... Here, responsibility is about developing the openness and the sensitivities necessary to be curious, to understand and respond in ways that are never perfect, never innocent, never final, and yet always required.16

The project of conservation should be one of attunement, of learning to listen to the landscape on a daily basis and respond to its needs across time. I don’t pretend to know what the exact redesign of the Ballena National Marine Park would look like, but I believe this openness and this sensitivity to the acting and response capacities of non-human others should be at the center of an institution that claims to protect them. Where protecting no longer falls under a master mentality, but one of care, of “constantly shifting the capacity to respond to one another’s needs.” This necessarily means having a flexible institution—one that is able to shift its rhythm in accordance to the ecosystem it is looking to respond to.

Shifting our perspective of time allows us to understand differently the constitution of a landscape, its trajectories and its entanglement with different actors in that landscape. As philosopher Michelle Bastian notes, challenging the dominant conceptions of time opens up our understanding of agency. According to her, this calls for an attitude that assumes that environments are not “available immediately to an actor but must be experienced through time, in their different seasons, throughout their (and one’s own) changes.”17 Yet in modern societies, most of us live under an unbending clock-rhythm that ignores the changes and rhythms in the environment and our own bodies. And most of our institutions are designed under this rhythm, too; even those whose main job is supposed to be caring for the environment.

The point here is that time matters. The timeframes from which we explore a place make a difference; the rhythms we pay attention to (or on the contrary, choose to ignore) influence our ethical attitudes toward others inhabiting the Earth. And so, in a greater sense, time matters when it comes to rethinking our place within our ecosystems. What I learned in this process is that, in order to start paying attention and attributing significance to those other rhythms around us, it is necessary to re-evaluate our senses and our corporeal experience and to see them as being as important as our rational and abstract thinking processes. Noticing other rhythms demands sensorial and corporeal attention, and so it demands letting go of Cartesian dualisms that separate mind and body, and hierarchize thought over senses. In this regard, I would like to close with one final story about our own human bodies.

Geologist César Laurito told me that for him, our bodies tell as much of the history of Earth as fossils do. As he spoke of the human evolution, he described our bodies in a way that made me feel as if we still carried the sea within us:

We come from the sea. And when I say that we come from the sea, I mean it. We come from the sea. That is, every terrestrial vertebrate at some point evolved from a common ancestor that came from the sea, which adapted to the coast and to the land, and conquered it.... And still, when I tell you that we carry a fish inside, well, we still have many things from the fish. The swimming bladder of the fish became our pulmonary sacs. From the gills, we were left with the ears—the ear openings, those are branchial. Our balance organ inside our ears, which allows us to walk and not suffer from vertigo, that comes from the balance system of the fish. The fact that we have, for example, the hand, all the bones from the arm, all this comes from the fin bones of ancient fish. So we depend so much on the sea, I think... we cannot disconnect ourselves from the sea.18
We carry within us a corporeal knowledge about the Earth, its rhythms and its evolution. In the accumulated knowledge of our bodies there is still the memory of the sea, where it all began. Just as the landscape of Ballena, our bodies are made of materiality once shaped slowly, over time, by the sea. Just as the deep history of the place we now call Costa Rica, our bodies’ deep history also emerges from the sea. This history has equipped and specialized our bodies to sense the world in order to respond to it: we are corporeally fit for this multi-rhythmical earthdance.


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**NOTES**

3. Ibid.
5. As noted by biologist José David Palacios, in discussion with John Tresemer, 2016.
7. José David Palacios interview.
8. There is no conclusive agreement about the exact measurement of the maritime territory of Costa Rica, thus neither is there agreement about the percentage that is officially protected.
10. Through personal interviews and conversations with different rangers, I heard repeating testimonies of their dissatisfaction and frustration, as well of the excruciating lack of resources.
11. Spanish is a gendered language. I have decided to keep it this way in the translation as it speaks of Antonio’s perception of the sea as an animate being.
“I’m scared!” shrieked a petite fifth-grader as she grabbed my hand. Her anxiety was palpable. She was frozen in her boots, resisting forward motion as if she were about to be pushed off a cliff. We were in Chicago, one of the flattest places on Earth, and there were no cliffs here on the city’s south side at the Forest Preserves of Cook County’s (FPCC) Beaubien Woods. Instead there were tall grasses, a sprinkling of trees, and a small oblong lake. Nestled among a looming landfill, hectic highway, polluted river, and pungent sewage treatment plant, Beaubien Woods is a natural area gem that lies at the center of what local environmental justice leaders Hazel and Cheryl Johnson call a “toxic doughnut.” This place juxtaposes the natural beauty and the environmental degradation that are found in the Calumet region near Lake Michigan’s southern end.

As my new nature exploring companion stood looking at the path ahead, I wanted to know why this place made her anxious. In my experience it’s best to identify one’s fear. So I asked: “Well, what exactly are you afraid of?”

“Nature!” she shrialed, clenching my hand tighter. Maybe she meant insects or plants or predators, I’m not sure. Regardless, she was about to enter the great unknown: a prairie. This newly restored prairie showed the fruit of many hours of volunteer removal of invasive species. Tallgrass prairies like these are globally endangered; only 0.01 percent of Illinois original prairies remain intact.¹ It’s no wonder it would seem so foreign to this Chicago youngster. We fear what we don’t know.

Over the next hour she and her classmates learned about prairie grasses that reached above their heads: Big Bluestem, Indian Grass, and one that could double as a heavy metal band name: Rattlesnake Master. They were set loose on an exploration walk with bug boxes and magnifying glasses and, with a few reassuring words, soon she and her classmates were laughing and saying things like, “Look what I found!” as they navigated this new place. Soon it was hard to keep track of them among the golden dried grasses.

Her experience of being nervous around nature is a product of a larger issue among twenty-first century children. We are living in a time where life happens indoors. In the words of Richard Louv, “childhood has moved indoors.”² Children’s use of space has
changed from being primarily outdoors to indoors, increasingly adult supervised, and full of screens. Louv coined this tendency “Nature Deficit Disorder” in 2005, sparking a movement to help re-establish and foster stronger connections between children and nature. In part, this was what led me to Beaubien Woods on a fall day to host a Mighty Acorns field trip as part of my role at the Field Museum of Natural History. Our Youth Conservation Action programs aim to foster the next generation of environmental leaders by connecting kids to nature on Chicago’s far south and west sides, providing them with the knowledge, skills, and experience needed to foster love and care for nature. These kids come from neighborhoods that face a range of challenges, but are also places with strong community leaders, social networks, and, if they live close to places like Beaubien Woods, potential access to beautiful green spaces. More than 85 percent of Youth Conservation Action’s third through twelfth grade students are considered low income, according to student lunch data, and over 94 percent are students of color. These students are inspiring, passionate, and helping redefine what “green” can and should look like in urban spaces. As they continue in their schooling, we’ve seen that many are pursuing environmental paths and helping transform the U.S. environmental movement.

In this essay I explore the implications of Nature Deficit Disorder and its consequences for children and the long-term health of people and the planet. These stories are drawn from my experiences working with kids in urban green spaces. I pay particular attention to the need for the environmental movement to invest in the next generation of environmental leaders by connecting kids to nature in culturally relevant ways while also working to transform thought, practice, and leadership in order to become a more diverse, equitable, and inclusive movement.

SCREENS AND THE GREAT INDOORS

On a mild, gray day I notice slides, swings, and plastic climbing “rocks” as my son and I approach our neighborhood playground. But I’m most struck by what I don’t see: children. This is far from an anomaly. A recent global survey of twelve thousand parents found that “on average, children now spend less time outdoors than a prison inmate”—less than an hour a day.5

Today’s kids have an alluring reason to be indoors—screens. Common Sense Media’s recent study showed that teens in the United States spend nine hours a day on screens—not including school or homework.6 Similarly, the Kaiser Family Foundation has found that young people ages eight to eighteen spend an average of more than seven to thirteen hours a day with eyes locked on a screen. These numbers are smaller for younger children but are still pervasive, with the average child under eight spending nearly two hours a day on screen media.7 Technology isn’t inherently bad; however, it has come with a cost. Children are heavier and unhappier as obesity and anxiety are on the rise. Today, nearly one in every three American kids is overweight or obese.8 A 2018 report in Pediatrics found that obesity jumped from 14 percent in 1999 to 18.5 percent in 2016. Our youngest children, ages two to five, had the highest increase, from 9 percent to 14 percent.9 Kids who are obese are more likely to be more prone to various health problems later on. Technology isn’t bad, but we need to promote a healthy balance.

FROM HUNTERS AND GATHERERS TO CUBICLE DWELLERS

We have not evolved to lead sedentary, indoor lives, and our bodies and minds show it. I remember a spring field trip I led at Wolf Lake, which straddles the Illinois/Indiana border on Chicago’s Far Southeast Side. Wolf Lake is rife with the evidence of the region’s industrial past and present: the view of the water, nesting bald eagles, and greenery is next to the Indiana Toll Road, massive power lines, and the Midwest’s largest oil refinery. It’s also a great spot for fishing, hunting, and family picnics, and on that spring day, nature exploration.

While on the exploration portion of the trip, one nine-year-old tromped around as if walking in a bounce house. His arms flailed as he awkwardly lifted one leg and then another to navigate fallen logs. At one point he nearly went down on all fours to keep up with the uneven terrain. It reminded me of watching my son learn how to walk: lots of concentration as he lifted and lowered his limbs, all while appearing as if he was walking a tight rope. This might as well have been the first time this kiddo walked on uneven ground. Scenes like this are an example of a larger issue facing American youth. There are reports of underdeveloped vestibular (balance) systems in children as a by-product of our indoor, sedentary lifestyles. A 2014 article in The Washington Post reported its study of classrooms with seemingly “hyperactive” kids who had trouble sitting still. The Post found that confining kids to static lives had various physical impacts, including on their vestibular systems. They argue that to develop a strong balance system, children must be moving, in all sorts of ways, for many hours at a time.10 Luckily, unmanicured nature offers just that.

NATURE ON OUR MIND, OUR MINDS ON NATURE

Beyond the physiological impacts, there are significant mental health benefits to time in nature. An increased sense of calm, a
restored ability to focus, improved behavior and attitudes, and higher academic achievement are just a few of the benefits. If you’ve ever felt calmer and happier after time in nature, it’s not a fluke. Nature has a recuperative effect on our senses. The Japanese have known this for centuries and turned it into its own art form: *Shinrin-yoku*, meaning “Forest Bathing.” This practice is simply the process of connecting to a nature through your senses. It’s a structured way to let go of so much structure, allowing for time to notice all the sensations of being in the natural world.

While nature-based field trips with kids are no forest bath, they can move toward the same result. Children, especially those who are rarely outdoors, can sometimes look more like raucous concert attendees than reflective forest bathers. All that fresh air is invigorating, and their enthusiasm contagious. Mindfulness in nature fascinates me, and, as a bonus, it provides a moment’s peace during the chaos of outdoor trips, so I started to create quiet moments for kids during the trips in order to connect to their senses. Standing like statues, we would partake in a quick journey among the senses: “What do you hear? What do you smell? And what do you feel?” Many of the kids are taken by the feel of the wind on their cheeks. Others say that they can hear the chirping of birds, the hum of speeding cars, or, more simply, air. A small boy once said, with a wild look in his eye, “I heard a wolf walk by us.”

Nature’s restorative benefits have drawn a lot study. Attention Restoration Theory (ART) posits that time in nature has a restorative effect on our mental state, asserting that mental fatigue and concentration can be improved by spending time in nature. Even looking at natural images has been suggested to be beneficial to the human psyche. In an age when our brains are continually bombarded with stimuli, our minds need time for recuperation. Stephen Kaplan finds that the restorative impact of nature is affected by various things, including the “soft fascination”:

Nature is certainly well-endowed with fascinating objects, as well as offering many processes that people find engaging. Many of the fascinations afforded by the natural setting qualify as “soft” fascinations: clouds, sunsets, snow patterns, the motion of the leaves in the breeze—these readily hold the attention, but in an undramatic fashion. Attending to these patterns is effortless, and they leave ample opportunity for thinking about other things.

This fascination plays a crucial role in attention restoration and is also accessible to everyone. And it isn’t just reserved for vast mountain ranges; in the words of Emma Marris, “Nature is everywhere, we just need to learn to see it.”

Enhanced attention due to nature exposure has been documented by the Children and Nature Network, and participating Youth Conservation Action teachers often note that the students who are often the most disruptive in the classroom are well behaved and engaged during outdoor field trips. Students engage all their senses, they move about, and they directly experience things in a way that helps those with attention issues to be deeply engaged while learning.

**NATURAL FRIENDS**

Kids need nature for their physical and mental well-being, but nature can also help children connect to others. On a trip to Eggers Woods, kids were engaged in hands-on engineering as they built a fort in a cluster of trees. They laughed, negotiated, and communicated like well-polished designers as they figured out how to lift heavy logs into formations that could produce a sturdy structure. Their teacher and I watched from a short distance. As the students continued to build not only...
the fort, but their team, the teacher teared up. She pointed to a young boy as he lifted a branch and carried it to the fort. She said she had never seen him engage so well with his peers. He often was a loner who didn’t engage well with others, she said. We watched as he interacted, excited and animated with his peers, in the creation of their new structure. Nature can bring people together.

Natural places are special, but they are meaningful in part, because we share them with others. According to the Nature of Americans study, “Experiences in nature are deeply social.” Other studies show that people’s most memorable experiences in the outdoors involve other people and, similarly, conservation professionals tend to share a common reason for pursuing an environmental career: a love of nature stemming from meaningful outdoor childhood experiences with an adult who was important to them.

That kids today are inside, attached to screens, and that this isn’t all that helpful to their waistlines and headspace has been well documented. But why is it so hard to get outside? Here I examine the barriers that keep kids from getting outside and examples of solutions to connect kids to nature.

**BREAKING DOWN BARRIERS**

Access to safe green space can be a barrier to connecting kids to nature, and nature can feel rare in an increasingly urban world. Today more than half of the Earth’s 7.6 billion human inhabitants live in cities, and in the United States, the population is 82 percent urban. Cities tend to draw a veil between people and the natural world. Some communities may lack access to safe green spaces due to contamination or the threat of violence. This is true in parts of Chicago, where in some neighborhoods playing outside isn’t safe, and sticking to screens indoors may seem like a better option. Nationally, environmental organizations are beginning to recognize the issues of equity and access to green spaces. Locally, organizational partners are attempting to lower the barriers of transportation and offering culturally appropriate and inclusive programming with a goal of connecting Chicago residents to more than 370,000 acres of protected land found in and around the city.

Even when green spaces are physically accessible, fear can be a major obstacle to overcome. Risks can range from uncomfortable poison ivy to dangerous people in the woods. Perceptions of how welcome people are in these spaces are also important. Levi Jenkins, a Field Museum intern and later staff member, noted that natural areas can seem uninviting:

> We went to Indiana Dunes, we went to nature preserves, and like you, when you think about those places they seem boring, and... not approachable, but they are actually so much fun when you go there and learn stuff. You make new friends, like real friends, that you can talk to about anything.

How to be safely immersed in nature is a learned skill. Through the Outdoors Empowered Network (OEN), partners across the United States, including the Forest Preserves of Cook County and the Chicago Park District, are helping adults and youth experience nature safely via hiking and camping activities. OEN members provide gear libraries and educational programs that have successfully trained hundreds of individuals to lead youth on hiking and camping trips. By using this model kids are connecting to nature with the adults they are already familiar with and trust—parents, youth workers, and others—in a way that best meets their needs, interests, and cultural background. This process addresses the barriers to getting outside while empowering communities to connect to nature in culturally relevant ways.

**NATURE NEEDS KIDS**

While kids need nature, nature also needs kids. In the age of climate change, mass extinction, and unprecedented environmental degradation, there is a need for champions of the Earth. The health of the global environment is contingent on people actively protecting and advocating for a sustainable planet. People don’t protect what they don’t care about or what they don’t know. That’s why it’s so important to support outdoor programs that expose all children to the natural world—with multiple and meaningful experiences in nature—so that they not only reap the benefits of experiencing nature, but also grow up to be advocates for a healthy planet.
BUILDING A CULTURE OF CONSERVATION

We know that there’s a disconnect between today’s youngsters and nature, and it’s adversely impacting them and the planet. The good news is that we know a lot about how to re-establish that important connection. Youth Conservation Action programs focus on building the capacity for nature-based education. By working with educators, the Chicago Field Museum is instilling a culture of environmental care at Chicago schools. We train teachers to take kids outside to learn and provide tools to collaborate with others to bring a vision of environmental awareness and action. While we can provide high-quality field trips, the best trips are the ones led by the schoolteachers themselves. Doing this requires specialized nature educator training and instructional support that help educators connect curriculum to nature in a meaningful way.

This approach has been fruitful. We asked some of our students what they would tell someone about their Mighty Acorns field trip. Their responses weren’t “it lowered my obesity” or “I really challenged my vestibular system in appropriate ways,” but instead, “I would tell him/her that this was the best field trip that I’ve ever been to in my life,” and “I would tell them that it is a real adventure and they would learn a lot about biodiversity and non-native and native plants,” and, one of my favorites, “I had the best day ever. I cut honeysuckle bushes. My trip was fun. There is nothing better.”

Teachers also report the sense of achievement, poise, and confidence that radiates from the students as they enter back into school after a nature-based field trip—muddy, dirty, and giddy with fresh air. One teacher told me, “It’s like they’re returning from the jungle, even though they were just a few blocks away at a Forest Preserve. The other students are envious.” And we see the fruits of this approach as program participants grow from “mentees to colleagues.” We are lucky to work with past students and others who followed the spark of excitement on a nature-based field trip all the way to an environmental career.

NATURALLY, CITIES

The quote that sits on my desk is, “You cannot protect land from people, you can only protect land with people,” by Peter Forbes. If we want to protect land with people, they are found mostly in cities. By 2050 it is projected that 68 percent of the world’s population will be urban. Wilderness and metropolises are often thought of as opposites, separate and distinct. However, cities and nature are intricately connected and shape each other.
There is a shift happening in many cities that are now designed to embed nature in everyday experience. An exponentially growing population is putting the world’s resources under stress as our extractive economic model booms around the globe. If the planet is to withstand the human impact of over 9.7 billion people by 2050, we must find new and innovative ways to live together, especially in these urban settings. This means using resources efficiently, lowering our ecological footprints, and finding ways to integrate nature into our everyday, urban lives. Designing youth programs that let kids today be the problem solvers on real environmental issues is empowering. As one of our program alums put it: “I’m not going to be the last human being here.... There are going to be generations after me and the damage that I’m doing right now is going to affect them more than it’s going to affect me right now. It’s like you’re doing something positive and that’s powerful.”

This growing urbanization also means shifts in traditional conservation mindsets. Cities can be good for nature, offering spaces for humans to live closer to each other and share resources. And while cities have often been deemed polluted, crowded places devoid of nature, we are finding that they actually can provide some critical habitat for creatures like the monarch butterfly. Recent reports have shown how cities can be important places in migration paths for these animals who don’t need large swaths of land, but safe and consistent places to land and eat—many of which can be nestled into parks, backyards, and medians.

**FOSTERING A DIVERSE GENERATION OF NATURE NUTS**

Nature needs a strong and diverse next generation of stewards equipped with the awareness, knowledge, skills, and passion needed to ensure that environmental protection and human well-being are integrated and prioritized. Everyone has the right to live in a healthy environment and have access to green space and nature. However, in the United States, this ideal isn’t realized for many. Many low-income African American and Latino communities often lack accessible green spaces and are disproportionately impacted by pollution. Youth not only need to be connected to nature but need the tools to speak out and take civic action on environmental injustices. We need the youth of today to help us build the nature-rich cities of the future that are just, equitable, and green.

Historically, the environmental movement in the United States has been predominantly white and has not always prioritized Environmental Justice communities. For example, Green 2.0 has produced annual reports to document the diversification (or lack thereof) of the environmental movement. Their initial report, *The Green Insiders’ Club*, found that “racial composition in environmental organizations and agencies has not broken the 12 to 16 percent ‘green ceiling’ that has been in place for decades.” In recent years the environmental and conservation movements have begun to acknowledge and tackle diversity, equity, and inclusion (DEI) issues, but much work remains to be done. Environmental organizations like the Sierra Club and 350.org have been very public with their incorporation of civil rights into their platforms, while other organizations are working with DEI specialists to try to figure out how to improve. These are positive steps, but the overall success of DEI activities in the environmental movement has not been fully realized. Despite DEI efforts by some environmental organizations, an early 2019 report by Green 2.0 found that staff and leadership in environmental organizations have actually become less diverse.

As conservation and environmental movements acknowledge their problematic past and commit to building a bigger, better, and more inclusive movement, there’s a need to make sure that DEI activities go beyond lip service—that they have clear goals with adequate resources behind them along with a continued commitment to check in, report, and change. The path forward is unknown, but we know by examining these issues and truly addressing them we have the opportunity to build a much bigger, better, and more equitable environmental movement.

**STORIES MATTER**

The stories we tell inform people’s perceptions of nature. The U.S. conservation movement has often jumped to narratives that idealize wilderness, solitude, and leisure. Whether it’s the idealization of Lewis and Clark as they explored the westward wilderness or the image of Aldo Leopold sitting in a field making nature observations, the conservation movement has perpetuated environmental narratives that narrowly define a meaningful connection to nature and has, in many cases, not included the experience of people of color with nature.

And there are many stories to include, from the diverse history and cultural practices of the many Indigenous Nations of the Americas who were shaped by their relationship to Turtle Island to the vast agricultural knowledge of European and Asian settlers, and free or former African slaves who worked the land for sustenance and survival. Researchers Dr. Carolyn Finney and Dr. Dorceta Taylor have documented the exclusive and racist history of the conservation movement that still has an active legacy today. They have pointed out that for
many communities, natural areas have been places of trauma. Whether one’s family crossed a remote desert in search of a better life or feared backwoods lynchings, these stories influence how safe and welcome people feel in nature. Giving voice to the many untold stories of people of color who have been an integral and important part of the U.S. environmental and conservation movements can be a way to expand what it means to connect to nature.

Nature can be a place of healing, growth, and renewal, but not without truly understanding that we all bring different experiences, stories, and ancestors to our relationship to nature. Therefore, programming that “connects kids to nature” must incorporate the histories, stories, and community-held aspirations for green space, and we must support natural areas that welcome and reflect community needs.

In summer 2018, teens participating in the museum’s Chicago Green Ambassadors program decided they wanted to help challenge the stereotypical images of nature and to help create new stories of what it means to be green. After learning of Taylor and Finney’s work about dominant environmental narratives, they began to make their own. They started capturing their “ideas of nature,” helping us re-think what and where nature really is. Their photos ranged from warm summer nights on porches to urban lakefronts, to open skies above crowded roofs. This program is an integral component of the Roots and Routes Initiative, which is a collaborative project aimed at creating and sustaining the Burnham Wildlife Corridor on Chicago’s south lakefront in order to maximize benefits for neighboring communities and nature. Youth receive training in action research that helps them connect their communities to nature in culturally relevant ways. This program has had transformative power for the teens, our staff, and the communities where we work. It’s powerful to see teens continue to find their voice for the future while connecting to nature, each other, and their neighborhoods.

**CONCLUSION**

Most of us want to connect to nature. Nature is essential for all of us, but especially for kids. We are living in a time of great opportunity, when the solutions to today’s environmental crisis are very much evolving. Institutions like the Field Museum and others have a responsibility to acknowledge historical and existing racism and be part of the conversations and actions that move us toward a more equitable and inclusive environmental movement. We need a new movement that reflects the diversity of thought, background, and experience in the United States.
We need new innovators, problem solvers, and passionate nature nuts to curb the impacts of climate change. And building that new movement means a strong investment in youth.

The youth will be the new leaders who provide a strong voice for what the future should look like for the planet. We need to intentionally make spaces to create and form a new narrative for a new environmental movement that is innovative, integrat-ed, multidisciplinary, and represents the diversity of the United States. This means understanding and acknowledging the racist and exclusionary principles that were present during the emergence of the U.S. conservation movement and, later, the environmental movement. We are living in times of unprecedented degradation; we need unprecedented collaboration and change.

And it’s fun. At a time when things can feel hopeless for the environment, children offer hope. You can see the beauty through their eyes, even at places like Beaubien where, while surround-ed by highways, sewage, and landfills, the magic of nature can still provide exploration, respite, and lots of laughter.

Alison Paul is an environmental educator, outdoor enthusiast, Environmental Leadership Program Fellow, and the Field Museum’s Chicago Region Manager. Alison has more than a decade of experience working in formal and informal educational settings from Colombia to Chicago in order to support the next generation of knowledgeable, passionate, and engaged leaders. When she’s not working to get others outdoors, she can be found exploring Chicago’s great natural areas (including their backyard) with her family.

NOTES


3. Mighty Acorns (www.mightyacorns.org) is a regional environmental education partnership housed at the Field Museum that engages over twelve thousand students each school year in meaningful interactions and learning in local ecosystems.

4. Chicago Public Schools Data can be found at https://cps.edu/SchoolData/Pages/School-Data.aspx.


13. Ibid.


21. The Forest Preserves of Cook County’s Camping Leadership Immersion Course (CLIC) can be found at www.fpdc.com and the Chicago Park District’s ChicGO Explorers Front Country Leadership (FLT) training program can be found at www.chicagoparkdistrict.com. Information on the Outdoors Empowered Network is at www.outdoorsemPOWERED.org.


23. Ibid.


25. The Field Museum’s Keller Science Action Center has been one of the partners working on urban monarch conservation tools, which can be found at www.fieldmuseum.org/science/research/area/keller-science-action-center/science-action-chicago/youth-conservation-action.


Of a Feather

ANGELA JUST

Humans and Piping Plovers on Chicago’s Montrose Beach

They picked the beach equivalent of Times Square to mate and create a family.

With their inner pluck and some close monitoring from committed volunteers, two federally endangered Great Lakes piping plovers succeeded against all odds. At Montrose Beach in summer 2019, the parents (Monty and Rose) raised two healthy chicks, Chicago’s first fledged pair since 1955.

The village it took for this happy outcome included over 185 volunteers and a cooperative effort among a number of environmental agencies and organizations.* It was all hands on deck for several months while the plovers and monitors dealt with errant volleyballs, off-leash dogs, fireworks, beach flooding, and predatory birds—with the frenzy of the Air and Water Show thrown in for good measure.

The birding community hopes to see Chicago’s own piping plovers return next year. For all involved, the word that captures our shared moment is privilege—it was a privilege to witness and root for the hard work of “being bird” in an often harsh environment. We were all in, birds and humans flocking together.

Time-Stamped

ANGELA JUST

The survival of the piping plovers offers an... argument for the... importance of the Endangered Species Act
—Chicago Sun-Times, August 13, 2019

Plover chick, we’re here on this city beach guarding you
dawn to dusk these peak days of summer, a ragtag flock
of giddy birders telling your story to passersby who
can’t get enough of you (we love their oohs and ahs).
Today, you’re all business at the big lake’s shore
away from dad and sibling who rest in the nearby grasses.
I watch you skirt the surf, picking up grub in the sand,
trying your wings before the tug of the long trip south.

A photo time-stamps you—that fierce little eye
of yours!—captures your shadow, precise as the one
I cast on the sand, the one saying I’m here now under a sun
that finds me worthy of comment. Plover chick, the sun
finds us both singular—alive and curious as we are—
endangered as we all are under its wide and dwindling eye.

Angela Just writes of nature and its people from an apartment
above the lake and trees in Chicago’s Edgewater neighborhood.
Her chapbook “Everything I Own” was published in 2016 by
Porkbelly Press. Her poems appear in Bird’s Thumb, Flyway, Free
Lunch, After Hours, MAKE, Seeding the Snow, and other journals.
Fifth Wednesday Journal has featured her photography.
Montrose Beach, by Angela Just
Above: Philip Juras, The Grand Prairie of Illinois, 2019, Oil on canvas, 36 x 60 in
Below: Philip Juras, The Grand Prairie of Illinois, Night Fire, 2019, Oil on canvas, 36 x 60 in
Editor’s Note: American landscape painter Philip Juras has keenly captured some of the remaining wild landscapes of Illinois during a six-year study of the state. Here he discovered a surprising diversity of prairie plant communities that were a bit different from the grassland remnants he studied in his home state of Georgia. Philip was invited to take this visual journey by one of Illinois prairies’ biggest allies, Wendy Paulson, to discover and capture these lovingly restored Midwest landscapes. To honor these prairies and share their uniqueness with visitors, the Chicago Botanic Garden will be celebrating the beauty, ecology, and history of the Illinois prairies in an exhibit showcasing Philip Juras’s work. Minding Nature is honored to share some of his paintings from this exhibit along with Wendy Paulson’s interview. They met on the coast of Georgia last fall to share thoughts on their love of prairies.

Wendy Paulson (WP): What I’d like to first ask you is just what originally sparked your interest in grasslands?

Philip Juras (PJ): Well, I did not grow up in a grassland. In fact, I grew up in a part of the United States where that old popular myth made sense, that a squirrel could have once crossed from the Atlantic to the Mississippi without ever having to touch the ground, traveling on an unbroken forest canopy. I always thought that this was true until I was in my early twenties, when I went to a conference on native plants. There I heard a speaker talk about the southeastern United States not as an unbroken forest, but as open woodlands, and sometimes grasslands, experiencing frequent wildfires. This was not the landscape that I had always imagined as a child.

At that time, I already had an art degree, so being a visual person, that set me on a course of wanting to discover what those landscapes really looked like. Interestingly, what I learned about the Southeast turned out to apply to Illinois as well. They share an origin since it was southern grasslands that migrated into the formerly glaciated areas of the Midwest. In a way, the South is the home of the tallgrass prairie.

WP: You’re actually leading into my next question because I’ve always thought of you as an artist focused on the Southeast. How did your interest, which has become a sustained interest in midwestern grasslands, develop?

PJ: It came about from the very same question of wanting to know what the southeastern landscape looked like—which led me to do my thesis research in landscape architecture on southeastern grasslands. Since grasslands have basically disappeared in the South, I studied midwestern tallgrass prairie and savannas as a parallel. This was not my first introduction to the Midwest and to tallgrass prairie, but it was the point at which I really began to understand this ecosystem.
There was an earlier seed of interest planted though. My mother grew up in Illinois. Although I never lived in Illinois, I heard a lot about the state. I heard about the prairie too, but I mostly associated it with the stories of corn and the big sky. I visited Illinois with my mother a few times as a young person and I experienced the agricultural landscape, but we also encountered a couple of restoration or remnant prairie sites. I think one of them might have been just south of Chicago, possibly the Hoosier Prairie in Indiana, but I was a teenager and don’t remember exactly. That was my early exposure.

I knew, though, that if I really wanted to experience or understand or explore grasslands as an artist, I would have to go outside of the Southeast. As you know, I’ve developed quite an affinity for them, and I’ve been exploring them from New England to Texas and even Colombia, but it was really when you in fact invited me to come to Chicago to see the fantastic restoration work being done that I came to investigate tallgrass prairie. I’m so glad you did. I’ve developed a much deeper appreciation, especially for restorations.

I think we come to understand something about ourselves when we get to know the landscapes that our ancestors encountered.

WP: There is such a wide spectrum of landscapes to be painted, but you’ve always been drawn to capturing native landscapes and often what I call historic landscapes. So I’m curious about this, because a lot of landscape painters aren’t depicting functioning ecosystems or native plants. Can you talk more about your preference?

PJ: I guess the short answer is that I prefer to paint native landscapes because that’s the subject I’m most passionate about. And I think I developed a love for that subject matter very early on. I got to know and love nature both in my mother’s garden—I had a native fern garden when I was little—and on camping trips and outings in the woods with my family. We went to places like Cades Cove in the Smokies and historic sites like Mount Vernon. And there were the nature shows on PBS and books we had at home, like Bartram’s Travels. All of that developed my interest. I learned even more in graduate school studying under Darrel Morrison, and then there was my thesis on historic grasslands.

The historical aspects in particular have become more important for me as I’ve learned more about pre-Columbian landscapes. I know I’m not the only one who wonders what things looked like in North America before Europeans arrived.

I think we come to understand something about ourselves when we get to know the landscapes that our ancestors encountered. And we certainly get to know the ecology. Being able to see or imagine these native landscapes, not just in a garden or in a small reserve, but over thousands or millions of acres, is what really sparks my imagination, what really makes me want to see things on canvas.

I found over the years that all of North America’s natural environments are compelling, but there’s something about grasslands that is a little bit extra special. I think it’s because of the abundant sunlight and long, expansive views. There’s so little to obstruct either of these, which really enhances aerial perspective. Also, because of the fine texture of native grasses, there’s often a very wonderful play of light in the landscape. All those things together make for a compelling aesthetic, which I’m drawn to as a painter.

WP: Exactly. I know you travel around a lot. You drive a long way to many sites. What stops you and speaks to you and just says, “This is the landscape that I want to paint”?

PJ: Well, it usually starts before I travel anywhere. Oftentimes, it’s based on my previous research. I know that there are environments I want to discover, and I might do further research or consult with experts in the field to get a sense of where to go to find the best historic environments or restorations of those environments. Once on the road, I often stop when something catches my interest, even if it’s not the environment I was looking for originally. Many times it’s plants in a roadside ditch that alert me to interesting subject matter. That’s especially true in grassland ecosystems, like in Illinois, where sun-loving prairie plants have been eliminated from the rest of the landscape.

WP: Once you stop, do you walk around and look for a composition that’s going to work?

PJ: Yes. Once I’ve done the groundwork, the fun really begins. My favorite part of my job is exploring a given landscape and letting it unfold in front of me, experiencing it in sight and sound and smell. Once I’m there, I’m tuned in to anything that strikes me as an interesting composition, or a good combination of color, or a good view into the landscape that invites further exploration. Even out of the corner of my eye, if something suddenly strikes me I will stop and photograph or paint. I’ve learned not to pass up even a slight impulse because the
PAINTING PRAIRIES OF ILLINOIS: AN INTERVIEW WITH PHILIP JURAS
grass is not always greener down the trail. If I’m successful, and a good image comes out of it, I will be able to share what I’ve experienced in that place with the viewer of the painting. That is really what I’m after.

WP: Describe the artistic challenges you’ve had painting prairie landscapes, specifically Illinois landscapes.

PJ: The emptiness and horizontality of the scenery has been a challenge, especially compared to the southeastern landscapes I’m used to, where there are usually lots of trees or topographic features to frame things. In fact, I’ve found myself favoring compositions that do have at least a few trees, or where something interesting is going on in the sky, so as not to have too empty a composition.

Nachusa Grasslands challenged me in that way. It has some very large open spaces. And certainly, the pre-settlement prairies did, so I’m attempting to depict that aspect as well. I think that’s important, considering how the subject was perceived historically.

I’m pretty sure, having done a bit of searching, that the tallgrass prairie was not well represented in nineteenth century American landscape painting. I suspect the main reason for that was that prairies didn’t offer the aesthetic and symbolic aspects that the artists of the time were looking for. The prairie was simply a horizontal landscape with a wide sky above it and very few features to attract the attention of the viewer. It did not offer the dramatic, sublime scenery of manifest destiny they were looking for back then.

WP: Like the Rocky Mountains or Grand Canyon.

PJ: Exactly. In fact, I can’t think of any historic prairie painting in which the prairie itself is the subject. There’s always some feature or character that makes it about the human story. To really depict the historic prairie, the one that you would have found in Central Illinois, where you might not have had a single tree growing within five miles, would truly be a minimalist depiction. It wasn’t until the twentieth century that that kind of approach to aesthetics would have made sense. Perhaps that will be evident in some of my paintings, but you will see that I remain most attracted to compositions that have framing elements, such as trees and clouds.

WP: Texturally, is it more difficult to paint a midwestern prairie than say for instance a southeastern salt marsh?

PJ: Yes, it is. There are similarities, but the salt marsh is often a single species of grass dominating hundreds or thousands of acres. That means that similar kinds of brushstrokes over a large part of the canvas will convey that, whereas in the prairie it’s often the case where there is a great deal of diversity, and it’s often very subtly distinguished. A lot more brushwork is needed for that. Showing those elements in the painting is important to me in order to tell the story that this is a diverse environment and the subtlety of those textures and colors and patterns are an important part of its beauty.

WP: You’ve woven this into your comments already but, if I ask you explicitly, just what are you trying to communicate through your paintings?

PJ: When I’m standing in these beautiful natural places, I’m really moved by them. That feeling is what I want to share. That’s why I paint and exhibit and talk about the work I do. I want everyone to feel that same feeling. That’s even why I compose my paintings so the viewer might feel they can step into the scene and virtually stand beside me. If that happens, if I can convey even a portion of that experience, it can allow others to think about the landscape in a different way.

WP: It’s almost a nudge to open one’s eyes to things that you may not have been attentive to before.

PJ: Yes. I think paintings have a particular way of doing that, different perhaps from photographs or video or other media. Painting is a very human act, translating an idea from eye to mind to hand, with a great deal of care, onto this two-dimensional surface for others to see and interpret. I think all of us are inspired or at least interested by that. I think that’s one way that the medium of painting can help in a very subtle, possibly a subversive way, to get the idea across that these places are important and beautiful and in need of attention.

**My favorite part of my job is exploring a given landscape and letting it unfold in front of me, experiencing it in sight and sound and smell.**

WP: I’ve heard you mention that the grasslands have not drawn the attention that those dazzling spectacular landscapes have and that you’d really like to have people also notice the grasslands.

PJ: Right. That’s my subversive aim. I read recently that the establishment of national parks in the desert Southwest could be partly attributed to the work of Paul Cézanne. Cézanne’s
imagery popularized the arid landscape of southern Europe in the public consciousness, and, by extension, that made the Southwest seem more beautiful and valuable, thus enabling the legislation. That nicely echoes the earlier legacy of the Hudson River School painters who inspired the creation of Yosemite and Yellowstone. Grasslands need that love, too.

WP: I was just reading the other day about the evolution of the Coastal Marshlands Protection Act in Georgia. It was described as a nexus of art and science where scientists were advocating for the protection of marshlands, but you also had Sidney Lanier celebrating these marshlands in his poetry. That hit an emotional chord with Georgians and that’s really what pushed that Act over the finish line.

It was my experience in elementary and even secondary education that there isn’t that much exposure to the visual arts except for the practice of doing them. I think that there’s a strong reason for teaching poetry and literature and art because it’s an entirely different motivation than just a purely scientific one, as strong as that can be. I’ve always felt that beauty motivates, whether it’s visual beauty or spoken beauty; that’s what gets people impassioned.

PJ: I agree. That really is the reason I want to present these special natural places to people in the way I know how. I hope it works.

WP: I noticed in terms of actually experiencing the elements of those places, you do a lot of fire paintings. Could you describe what got you into pursuing the fire paintings, which you’ve done both in the Southeast and in the Midwest. Can you just describe a bit, or all of it, just the experience and the process?

PJ: Well, I came to fire the same way I came to grasslands, because in the East you don’t have grasslands without fire. When I learned that, I realized I would have to explore the phenomenon of wildland fire, something I really wanted to do as an artist. The aesthetic experience of seeing a prescribed fire in the landscape is truly marvelous. It is out of this world.

Almost every burn that I’ve ever been on has been for ecological restoration, all these landscapes being fire dependent. I’m able to paint on these fires because some ten years ago I trained with the Georgia Department of Natural Resources as a wildland firefighter. I have to thank a friend of mine, Shan Cammack, who heads up the DNR ecological burn program, for getting me to do that. With that qualification, and by maintaining it, I’m able to participate on prescribed fires in Georgia and around the country as well.

So I was just delighted when I was given permission from Bill Kleiman at Nachusa Grasslands to paint some of their burns in December and March. The fires were gorgeous. They were different from our southern fires because the prairie grasses of the Midwest burn very rapidly, so I had to have a slightly faster approach to capturing the action. It’s very exciting to paint on a fire because everything is in motion and there is some element of danger, but I rely on my training and my fellow crew members to keep me safe.

WP: The wind can shift?

PJ: The wind can shift. But because I have all of my painting gear contained on a very portable easel and in my backpack, I can pick up and move quickly. That way I can stay ahead of the flames, or behind them, and capture the fast changing and dynamic colors and patterns of the scene.

WP: You’re in full fire attire?

PJ: Right. I’m dressed in Nomex and fire boots and a hardhat. The Nomex is fire-resistant fabric, but I know you know all about that, with your restoration experience.

In that setting, I get to really push the envelope as a painter. Fire puts you outside of your comfort zone right away, and you’re forced to really consider what the most important elements are of the scene that you’re looking at, since you really don’t have time to fool with detail. It’s a really good exercise.

WP: Are your strokes faster?

PJ: Yes, bigger brushes and faster painting in general. They have a more impressionistic and expressionistic feeling because of that. They usually take less than an hour. Really, I try to do all my field paintings that way, not just the fire paintings. It gives me a chance to capture the important elements of a moment in a given place and to understand them in a direct way, the colors, the textures, and so forth. I also try to do that in my large studio paintings, but there I have unlimited time, so they inevitably become more detailed.

WP: So some of your paintings evolve from a field painting to studio work?

PJ: Yes. Several of the paintings I did at Nachusa began in the field and were finished in the studio. I’m thinking of one in particular. It was an absolutely gorgeous sunset. A coyote went by and the bison were off in the distance.

WP: Doing whatever they do.
PJ: Yes. I was there by myself in the middle of a thousand acres of restored grassland. It was a fabulous experience and a spectacular sunset, but with the sun going down, I knew I only had a few minutes to paint. I knew I’d have to finish it later in the studio.

WP: Are you taking photos as you paint as well?

PJ: I do take hundreds of photos when I visit a site so I can refer to them later in the studio. My larger paintings are usually based on photos like these. I also try to take a few shots once I’ve started a painting in the field in case I need to finish it later. But once I’ve started painting, I may only pick up the camera once or twice, or not at all. Otherwise I’m aggressive-ly throwing paint onto that canvas, like I was for the sunset at Nachusa, because those colors are changing fast. I’m not thinking of details at all. I’m simply trying to place colors where they belong. Only fifteen minutes later it’s going to be too dark and I’ll have to stop, but I’ve established a lot of choices like the general composition and the tone that really attracted me to that landscape. When I bring that partially begun painting back home, I’ll use those photographs I took and also a good bit of imagination, possibly even rearranging the composition, until I bring it to a point of completion, yet still retaining the feeling of the moment.

WP: In a way, it’s a hybrid of precise capture of the scene and—

PJ: An impression.

WP: I’ve seen traces of insects and even traces of raindrops set into the paint. Can you talk about some of the physical elements
that you face as a painter? What are some of the normal conditions you experience, which many of us would consider real challenges?

**PJ:** Yes, probably most people who go into nature will recognize that bugs can be a big challenge and certainly when you’re standing in one place. I have abandoned sites here and there because the sand gnats or mosquitos were just too much—especially the sand gnats in the salt marsh when the sun is setting. No amount of bug spray would have helped. Normally, though, they’re not so bad and you do forget about them, especially when that wonderful moment happens, when you are so engaged with the painting that you don’t notice anything else. Then the elements don’t really matter. And you don’t even notice a deer standing fifty feet behind you watching you paint, which has happened before, too. The wind and rain are probably a bigger challenge, and I especially don’t love the wind. Sometimes you can’t make marks because the wind pushes you around so much. And I’ve had a few canvases blow over—face down, of course.

I think paintings do another thing for a landscape. Just by the simple fact that someone has spent the time to closely observe and paint it, that elevates the importance of that place.

**WP:** As a painter, you experience I think a lot of moments in nature that many—in fact, a majority—of people do not experience because they’re either on their way to work or eating breakfast or cooking dinner, or whatever.

**PJ:** That’s true. If only everyone could come with me to experience these beautiful moments and beautiful places. It’s so great to be out in the field in that meditative way, watching the sun rise and listening to the sound of the wind and the birds. It has been a revelation to find that so much happens in a place if you give it time. I think paintings do another thing for a landscape. Just by the simple fact that someone has spent the time to closely observe and paint it, that elevates the importance of that place. That means somebody cared about it. Maybe a lot of people care. Maybe it’s something that I should go see as well because it deserves that kind of attention and recognition. It’s another role that paintings can play.

**WP:** In that sense, I think for the artist—in this case, you—the painting becomes a form of advocacy, and if you really want to, it can be a form of conservation activism.

**PJ:** I would like to think it is. If I were to place myself in the world of conservation, it would be in the area of reaching people’s hearts, because nothing happens until people care about something.

**WP:** That’s right. You have to first know it, which means be introduced to it, then care about it, and hopefully you’ll be compelled to do something. As you say, it’s a straight route to the heart.

Let’s also talk about the upcoming Chicago Botanic Garden exhibit itself, *Picturing the Prairies*. How did this event come about?

**PJ:** Well, the wheels were really set in motion because you knew I loved grasslands, and you thought I should come and see the restorations being done around Chicago. I was blown away by them. As I did my first few paintings at Flint Creek Savanna and Poplar Creek Prairie, it became apparent to me that here was a subject that was worth exploring in greater depth, and in a broader context as well, as it turned out. Driving up to Chicago from the South and seeing the entire state, I began to consider a much wider picture that could be painted of Illinois. I wouldn’t have thought of it before, but Illinois turns out to be a beautiful place and a worthy destination for an artist. The natural places I’ve been are just spectacular. Having gone to so many of them, I began to form a picture in my mind of how Illinois really is the prairie state, although that’s not obvious when driving on the interstate. As this picture became apparent, I began to discuss with you and with Jerry Adelmann of Openlands that maybe we could do some sort of exhibition that would reach people with this natural vision of Illinois that’s probably not well known.

Much to my delight, the Chicago Botanic Garden decided to show the exhibit. I’m really excited about it, and I can’t wait to see all of the paintings together in one exhibition space. When you step into the gallery, even at a glance you should be able to picture what the Illinois prairie was like, where it is now, and perhaps what it can be. A few of the paintings will explore the subject of the pre-Columbian prairie, but considering that the rest of the paintings depict high-quality prairie remnants and restorations, really the whole exhibit is a window into the past. With all of the various environments and different seasons and times of day, I’m hoping it will be a wonderful emergence into the Illinois prairie ecosystem.

**WP:** Thank you, Philip. Can you think of anything else that you’d like to say that I haven’t asked about?
PJ: Yes. I couldn’t have put this exhibit together if it weren’t for all of the amazing restoration work that has been done by volunteers and professionals. I am very grateful for that. The prairies I visited would all be gone if it weren’t for them, and I wouldn’t have had anything to paint. Also, maybe I said it earlier, but I really think that Illinois is something of a nature destination.

WP: That’s what I was going to say. When you said that, it made me think about birding trails that have been developed in Texas and other places, and I thought, “Oh, we could have a prairie trail.” One with specific directions on where to go—to Fults Hill Prairie or Nachusa, for example. I think there’s a real opportunity for that—a very real one.

PJ: Thank you so much, Wendy.

WP: Yes. Thank you!

Athens, Georgia artist Philip Juras uses his art training and environmental background to share his passion for intact natural landscapes. Since 2011 he has published two books in conjunction with exhibitions of his southeastern landscapes at the Telfair, Morris, and Marietta-Cobb museums in Georgia, and has recently exhibited his Andean landscapes in Bogota, Colombia, and Washington, DC. His ongoing projects explore the fire adapted landscapes of the Southeast and the midwestern tallgrass prairie ecosystem.
Phillip Juras, Chiwaukee Prairie, Kenosha County, Wisconsin, 2019, Oil on canvas, 36 x 48 in
Phillip Juras, Galloping Hill Prairie, Cook County, Illinois, 2019, Oil on canvas, 36 x 48 in
West Bank of the Milwaukee River Greenway
SIXTEEN REASONS TO BUILD A FORT IN THE WOODS

EDDEE DANIEL

1. As an excuse (if you need one) to go outdoors.

2. As a shelter; you can say it’s from the wind, snow, or wildlife, but you admit to yourself it’s from other people—and monsters.

3. As an escape; from home, the city, the daily grind, civilization; a place where your imagination can roam freely in the wilderness.

4. Because sitting in it for any length of time will lower your blood pressure, calm your nerves, relieve your aching head.

5. Because making a fort is less about building a structure than it is about being in the woods, surrounded by nature.

6. To visit with the neighbors; the Silver Maple, Red Oak, Shag-Bark Hickory or the unidentifiable, decomposing log against which you prop your sticks; the Woodland Vole, Chipmunk, Squirrel, Opossum, rummaging through the leaves; if you’re very lucky and quite still maybe a Mink, Marten, or even a Coyote will slink stealthily by.

7. Because resting quietly inside allows you to listen more closely to the singing in the trees; the high-pitched buzz and chip of the Savannah Sparrow; the short, lyrical phrases of the Red-Eyed Vireo; the bubbly cheer of the rare and endangered Kirtland’s Warbler; as the light dims toward evening, the haunting cry of the Red-Tailed Hawk.

8. Because in the time it takes to build a fort you will have forgotten your mortgages, obligations to bosses, injuries you’ve received from—or given to—friends or lovers; or maybe you’ll have discovered the words needed to redress those injuries.

9. Because you remember being ten; or because you don’t remember.

10. To rekindle the sense of wonder and adventure that you may or may not remember; if you build it with sufficient reverence and awe, they will resurface.

11. As a place to read and reread Where the Wild Things Are with your children or your grandchildren.

12. If you are in fact a child, you won’t need a reason.

13. As a place of contemplation where you can reflect on the virtues of home, your city, daily life, civilization... and wilderness.

14. Because the structure you build isn’t really a fort, after all; it’s a time machine. It can transport you not only back to your own youthful past or to your imagined future, but also back to a time when no one needed an active imagination to experience a deep, dark forest wilderness.

15. To leave a token for the next child-at-heart who wanders through the woods.

16. As a message of hope, that the woods will remain woods.

Eddee Daniel is a fine art photographer, writer, arts educator, and nature lover. He has over 30 years of experience teaching art and photography and has an extensive exhibition record. He currently serves on the board of Preserve Our Parks in Milwaukee, WI, for whom he curates the website and blog at www.awealthofnature.org.
Above: Southern Vermont Health Center
Below: Root River Idyll.
Above: Riverside Park
Below: East Bank of the Milwaukee River Greenway
My investigations take the form of collages exploring the intimate physiological and emotional relationship between the human form and plant life. What interests me most is the way in which the human anatomy corresponds to structures in nature, plants, trees, and the landscape. This can manifest itself internally or externally in the form of patterns, designs, or metaphorical context—subtle-yet-enchanting similarities between the inner life of plants and trees and humans. What are humans if not plants and trees, themselves made-up of organic material?

Kathy Bruce’s work explores mythological female forms within the context of poetry, literature and the natural environment. Ms. Bruce is the recipient of numerous grants and awards including a Pollock-Krasner Foundation Fellowship, two Fulbright-Hayes scholar grants to Peru, and a Ford Foundation Grant. She has exhibited her work in the US, UK and internationally, including Senegal, Taiwan, Denmark, Peru, France, and Canada.
Labyrinthine Mechanisms
This pewter remnant within a golden prairie,  
this glacial legacy, this child of primeval rivers,  
now become the River of Man, faithful  
and fecund servant of the Illinois  
who named it and of the voyageurs who claimed it  
as their own.  

Flowing from the Kankakee  
and the Des Plaines, cutting sandstone rock  
at Utica, inspiring myths and vistas, widening  
into the Peoria, skirting Spunky Bottoms,  
this River, itself replenished by prairie waters—  
the Fox, the Vermilion, the Mackinaw, the Sangamon, the Spoon—  
embraced by its ancient father, the Mississippi,  
this River carries with it into the sea the memory  
of sycamore, of cottonwood, and of oak savannahs,  
and of the false aster fragile upon its banks,  
and of the great blue heron, the snowy egret,  
and of the eagle, and of the cormorant, the duck, the tern,  
and the evanescent warbler marking the spring and fall,
and of the mussel, the muskrat, the beaver, the otter, and of the turtle, and the sturgeon, patriarch of the life it harbors. And the current of the River of Man carries the memory of the lights of cities, barges, long-legged houses reflecting from waters now channelized, diverted, bridged, leved, dammed, made useful for transportation, for industrialization, for agriculture, for play, for the sport of man and for the waste which man engenders, the sediment, the silt, and life-dissolving solvents, the lessons of the future of man upon its banks, and the River flows into the sea, past cities, oaks, and prairies and the most fragile of flowers.

James Ballowe is Distinguished Professor Emeritus of English at Bradley University. Since retiring from university teaching and administration, Jim has written a biography of Joy Morton and a monograph history of The Morton Arboretum. For many years he taught natural history writing and environmental ethics at the Morton Arboretum.
Editor’s Note: The podcast “For The Wild” discusses critical ideas of our time and parlays them into action for the defense and regeneration of natural communities. Key topics include the rediscovery of wild nature, ecological renewal and resistance, and healing from the trauma of individualistic society. The following transcript has been shortened and edited for clarity. To listen to the full episode, visit forthewild.world/listen/rachel-heaton-roxanne-white-on-funding-fossil-fuels-and-femicide-13.

Ayana Young (AY): Hello and welcome to “For The Wild” podcast. I’m Ayana Young. Today, we are speaking with Rachel Heaton, who is an organizer and co-founder of Mazaska Talks, and Roxanne White, who works with Missing and Murdered Indigenous Relatives No Borders. I want to just start off by taking some time to thank both of you this morning. I feel incredibly humbled to have the opportunity to be in conversation with two such incredibly powerful leaders in the indigenous rights and environmental movements.

Over the past few years, you have joined forces with coalitions from 350.org, Seattle Rainforest Action Network, Honor the Earth, Indigenous Environmental Network, Greenpeace USA, and other indigenous leaders, activists, and allies in a campaign to force JPMorgan Chase to stop funding climate disaster and the build out of devastating new fossil fuel projects.

I think many of us don’t know that oil, gas, and coal companies are wholly dependent on major bank loans to construct multi-billion-dollar projects and pipelines like the Dakota Access or Keystone XL, which would cost TransCanada 8 billion dollars.

Rachel, perhaps you can ground our listeners in the historical arc of this campaign from the perspective of Mazaska Talks and how you came to be involved in this movement. How is Mazaska Talks leveraging economic power through divestment beyond Chase Bank to stop the flow of tar sands pipelines?

Rachel Heaton (RH): Gosh, there’s a really long answer and a really short answer. The work honestly didn’t start with the intention of us going after these banks. It started with just a number of Native people, finally having the ability to use social media as a way to bring issues to light to the general public, versus to just their own community. That started with Standing Rock.

It started with going over [to Standing Rock] and wanting personally to be involved in something with our native people. There’s so much lateral oppression that goes on in our communities that I think, for myself, I was just screaming, wanting to be part of something that didn’t have to do with my blood quantum or what tribe I was enrolled in. I went over because I just wanted to help.
Once we came back to Seattle, I connected with Matt Remley. He had actually found out that Wells Fargo was one of the largest funders of the Dakota Access Pipeline. I think a lot of us were trying to find ways to help and be a part of what was going on over there, even when we couldn’t be there. After having a conversation with Matt and Hugh McMillan, we were able to start targeting. We found out that the city of Seattle was actually banking with Wells Fargo. With the information that Matt had, it gave us the opportunity to join those issues together. From that point, we found out that there were sixty-three banks that were funding fossil fuel projects all over the world at the time.

I think it gave us some leverage—not that divestment is anything new—but it gave us the opportunity to use that tool for everyday people. We could make decisions and say, take your money out of this bank, or don’t support this bank because they fund fossil fuel projects and all of the horrible atrocities that come with such projects: the desecration of sacred lands, the violation of indigenous rights, but also the number of things that these banks have done to marginalized groups.

Of course, fast forwarding to February 2017, not long before the camps had completely closed down, we were able to get the city of Seattle to divest their 3 billion dollars from Wells Fargo. From there, we developed a tool, which was Mazaska Talks, that would then give other cities, universities—basically anybody a toolkit to divest their own communities from these Wall Street banks that are investing in these projects. But from an indigenous perspective, we were still able to lead it in that way. That’s what Mazaska Talks was really started with.

There are no traditional words for money. We didn’t have money. Mazaska Talks is Lakota for shiny metal, which would have been silver or gold. Mazaska Talks means money talks. Since that point, I think over 40 billion dollars has been removed from these banks because we’ve put power into everyday people’s hands.

**AY:** Well, thank you for that, Rachel. I think this was a perfect introduction that really helped ground this conversation. Roxanne, your organization and presence has also brought such a critical voice to the heart of this resistance, reminding us that the desecration of our Earth is intimately connected to the crisis of missing and murdered indigenous women and girls (MMIWG).

The statistics on this issue are just so horrifying. According to the U.S. Department of Justice, nearly half of all Native American women have been raped, beaten, or stalked by an intimate partner. One in three will be raped in their lifetime, and on some reservations, women are murdered at a rate ten times higher than that of the national average.

I’m wondering, how the rising crisis of MMIWG is connected to the construction of pipelines and other fossil fuel projects and how your organization, Missing and Murdered Indigenous Relatives No Borders, is addressing and raising awareness around these important intersections?

**Rachel White (RW):** Historically, the first man camps in North America were at the first point of contact when Columbus landed on our territories, on our homeland. They brought the first man camps. They brought the first brothers here. The genocide and the rape of our Mother Earth, of our sacred waters, our women, our children, our men—these things are all connected.

Indigenous people of this continent have been devastated by this first point of contact, and we are still seeing it. A lot of people don’t really understand, well, what do you mean genocide? People have this idea that Native American people have big casinos, big money.

That’s just the government’s story that they want to spin. The reality is that our ancestors fought for our land by signing treaties, trying to save and protect what little they could for the rest of us, for the future generations, the love of Mother Earth, the love of their great-grandchildren and their great-great-grandchildren. It’s not just that we were given these lands and that the governmental treaties have been respected. No. The government is steadily finding ways to break those treaties and to continue to commit not just genocide on us and our women, but also on our Mother Earth, which affects our entire community.

These man camps, they’re very dangerous. A lot of people envision man camps as being thousand-count, trailer-type modules, and we’ve seen those. We learned that those are set up for the Keystone XL and Dakota Access pipelines. But there’s so many different styles of man camps. Where there’s waters, like the Alaskan waterways, there’s man camps, with the ships, with the cargo, the export. In agricultural areas where tribes have a lot of agriculture, they bring in another form of man camp.

We’re being targeted and exploited in this manner by men—men that are not connected to us, don’t respect us, don’t know our families, and don’t value us as a people. A lot of these men have nothing else. Maybe they’ve burned bridges in their life and they have nothing to lose, so why don’t they just go and make all this money? A lot of them have drug issues themselves or a criminal history. They go in for our community. They get
these big checks and bring forth a lot of drugs, sexual violence, trafficking. It’s horrific when you really think about it. Targeting Native American communities when we are already experiencing the battles of oppression and systemic racism and genocide.

I haven’t been on this journey that long, but I was born into this life of being an indigenous woman. I experienced a lot of trauma as a child. By the age of twenty-two, I had gone through foster homes and abuse, even as a woman in my first relationship with my children’s father, a situation that I barely survived. At the age of twenty-two, I was trafficked at a man camp.

We, as indigenous people, have been dealing with the government using and raping our lands and poisoning our waters for a very long time. It’s a direct link. We as indigenous women—and our people and our families—have been affected by all of this in a really negative way.

**AY:** Roxanne, thank you so much for that. Thank you for sharing some of the more intimate, personal details with us. It’s extremely important for those of us listening to really sit with the intensity and complexity of this situation.

I’d actually like to read a quote from your most recent action in April, in which local activists protested and disrupted forty-four Chase Bank branches in Seattle with similar direct actions in twenty-two other cities across the country.

Rachel, you said, “We’re here because we want a better future for our little ones. We’re here for a better future for ourselves. We’re not here to cause a problem. We’re here to raise awareness. We’re here to be non-violent. We’re also here to let you know we are still here.”

What your words bring up for me is that these are matters of reproductive justice. Sovereign Bodies Institute has estimated that there are more than five thousand indigenous children who have had their mothers stolen by violence. The right to regenerate and raise children weaves throughout all of this work, mirroring the fragile web of life that is breaking down as many species face an uphill battle to reproduce.

I’m wondering how this ethic of reproductive justice and regeneration enters into your work and informs how you carry the torch for the next generation. Why must mothers, women, gender non-conforming, and two-spirit people be centered and honored in this movement?

**RH:** For me, linking our children into this work is so important, because for one, it starts with the history of the systems that have been set up. When we look at the matriarchs being removed out of our communities, when we look at the patriarchy system and the way that it’s set up, we’ve been removed from our children and from our families and put into this system that doesn’t allow us to grow and to heal and to be nurtured.

I think being a mom again, to a baby and not just my older children—it’s also changed my perspective in the sense that, forty years from now, it’s going to be such a different world for him if we get involved. It doesn’t mean just talk about it. We actually have to show them what they’re fighting for, because as we see, we can tell people a million times, “Do this, do this, do this.” It doesn’t always mean that people are going to take action. If you bring someone up in it and you expose them to it and you nurture them in that way—I want it to be just an automatic torch that gets passed on.

Bigger than that, our people are still here, and we have to sustain that. More than ever, I think having our children visible and in this work is so important. Because if we don’t, they’re literally going to get left behind because we’re so hidden behind our screens and our electronics.

For me, it’s become personal, because I’m not going to be able to fight for our people forever. Roxanne isn’t going to be able to. But we have to know that we’ve done the work, to show our kids that are here right now and the ones that are coming. We have to keep doing this and we have to keep being visible, putting ourselves out there, and being uncomfortable, because we’ve been invisible for so long.

I’m not telling everybody to bring their children onto the front lines and fight, but that’s where it sits for me and where it sits in my heart. I’m not fighting just for my kids, I’m fighting for all of our children. When Roxanne’s spreading the message that she is, she’s doing this work for all of those future generations, so that we can start undoing these traumas.

**We have to keep doing this and we have to keep being visible, putting ourselves out there, and being uncomfortable, because we’ve been invisible for so long.**

**AY:** I’d like to return to the issue of man camps that you mentioned, Roxanne. These temporary housing encampments are constructed often on indigenous territories and accommodate the influx of thousands of non-indigenous male workers following an oil boom.
I’m wondering, how do these camps and the toxic culture that surrounds them directly and indirectly impact local indigenous communities, businesses, women, children, the two-spirit people, and even indigenous men? How might we shed light on the shadow of these predatory extractive economies, the fact that social and cultural effects of industrial camps are not included in environmental assessment reports or even considered in the planning for economic development?

RW: That question is super complex. As far as these man camps and what dangers they impose on our communities? First of all, some of them are not right on the reservations from what I understand, but there are a lot that are very close, within miles.

These pipelines and man camps bring in a lot of money to a very impoverished, marginalized community, where there is already a battle of major meth, drug, and alcohol issues, a lot of historical trauma.

These men are bringing in all this money, cashing out large amounts of checks, finding drugs. They are basically the buyers, right? They want the women. How does that affect our men? Well, it affects the children of those women. It affects the husbands, the grandfathers, the grandpas, the dads, the sons. I mean, we’re all connected. If one of our girls is trafficked and ends up missing, that affects our entire community.

It hurts us all across Indian country. Every one of these girls and every one of these men that go missing, it devastates us, because we don’t have the resources to find them. At this point, we’re doing our best on a grassroots level. Prevention is part of it and getting rid of and being able to stop these man camps from coming into our communities. We don’t want them around our tribes, around our reservations, around our people, on our land. We should have every right to not have them there.

AY: I’d like to jump off the previous question and discuss the issue of legal jurisdiction and law enforcement that comes up around the crisis of MMIWG. Just to give our listeners a little background on this topic, tribal officers have the authority to investigate and prosecute non-Indians who commit crimes on indigenous territory. However, U.S. attorneys rarely pursue these cases. The Atlantic reported that in 2011, the U.S. Justice Department did not prosecute 65 percent of rape cases reported on reservations.

In the case of the Bakken boom, the tribe has little to no legal control over the thousands of non-native oil workers that doubled the reservation’s population. It seems that there are so many loopholes here—a jurisdictional void that systematically allows these cases to fall through the cracks and go underreported, unprosecuted, and unrepresented in the media.

Roxanne, I would really love for you to speak to this complex issue of jurisdiction and what barriers families face in seeking information and justice for their loved ones and family members.

RW: Well, it’s heartbreaking. The center of my work is assisting and advocating and supporting families of missing indigenous people across the board. I would not turn down anybody, whether it’s a child, a two-spirit or transgender person, male, female. I believe that this epidemic of Missing and Murdered Indigenous People touches all of us. What I can tell you is that we’re still faced with those issues.

Today, I’m working with families that want the FBI to get involved, and the agency isn’t involved. Families are still being told, “Well, we don’t know what to do with that, because that happened on the reservation.” People on the reservation are saying, “We don’t have the resources. The FBI needs to get involved.” It’s still like that. We’re still dealing with these types of hurdles right now.

I truly believe that eventually, things are going to get better. For now—and it may be for another few years—even if we sign an agreement, even if these bills all pass and become laws, we know that grassroots people and social justice advocates and frontline people will still have to hold these governments and these policies accountable.

The part that I really don’t get is why we need any laws for all law enforcement to treat indigenous women as human beings. Indigenous people, indigenous children? Why do we have to do that? That’s the United States. That’s the government that we’re under right now, who doesn’t see native people as human beings, who doesn’t see indigenous women as sacred, as valuable, our children as precious sacred gifts.

We’re just trying to do our best. I call out the FBI, the state attorneys, prosecutors, coroners, media, mainstream media. It’s still very hard to get any media to cover families. Just Google “missing CNN,” you can go down the list and you will see white person after white person that they are posting up for missing people.
They have only recently covered the story of Melissa Macklemore and then mentioned my cousin Lucinda Strong. How did that happen? I was able to make this happen because I’ve worked hard to make contacts with the mainstream media. Through my connections with a lot of media around the world, I was able to ask everybody to help me get in contact with CNN for a little four-year-old girl out of Aneth, Utah, who was missing for twenty-one days.

Indigenous women first go missing with their families, at their family table, at ceremony, in the homes of their families, but then they go missing in the community, in mainstream media, and virtually everywhere else. We’ve been invisible for far too long. We’ve been silent for far too long. That’s the work that we’re doing today—to humanize and continuously push for the missing and murdered indigenous people here in Canada and Alaska.

**RH:** When we talk about these issues that we have with jurisdiction, this is just another one of those obstacles that we continue to run into as native people. We add it to the long list of tactics that have been used to commit the attempted genocide against our people. I mean, it’s another form of boarding school, adoption, “kill the Indian, save the man,” forced sterilization, getting command of our resources and our lands.

It’s just another one of those tactics that are used against our people to add to that attempted genocide that’s still happening. It’s just now we’re doing this work and connecting with media and people around the world; people are finally hearing about these stories that are not new in our communities in any way, shape, or form.

**RW:** Exactly. I really believe that we’re at a point right now where we’re unifying all these injustices on one level. I have changed the title of the work that I do. I had a banner that said, “Missing and Murdered Indigenous Women and Girls.” I gifted that to the Yakama Nation Tribal Council. My amazing friend from 350.org helped me create a new banner for Missing and Murdered Indigenous People. The reason why is because I’ve had my mother, my aunties, and other elder grandmas from my reservation over in Yakama tell me, “Hey, Roxanne, don’t forget the men.”

When the grandmas and older women, my elders, the ones that I respect and listen to, when they are telling me to not forget the men, that really connected and resonated with me.

This is something that you can look at and you can say, “What about our DACA people? What about the people on the borders? What about the genocide and the separation of families that is occurring there?” We as indigenous people with our territories, we actually have a privilege that they don’t have. Normally we don’t have a lot of privilege, right? It seems like there’s a lot more privileged people than us, but we have a privilege as native people to these territories, to advocate for our border people, for our relatives that are also indigenous. Genocide is being committed at those camps right now. It’s hurtful to watch and to hear about all the things that are happening to these families and to these children.

Can you imagine? This is exactly what indigenous people went through. For the men of these families to watch their children to be taken from them and the mother to be broken, the father to be broken. The whole world is watching, and nobody’s doing anything.

Yet America would step in for other refugees in other countries when it’s convenient for them. They would step in and help refugees, bring them over to the United States. Yet Trump has such a problem with our borders along the coast of Mexico. Why? Because they’re indigenous people and he’s just a hateful man.

**AY:** Roxanne and Rachel, I hear you. I think about how not only are these issues not brought up in the mainstream media and are hidden in so many ways, but they’re also erased. The history of colonization is erased from our textbooks, our narratives, in the news. It’s horrific—this genocide and this destruction of indigenous people. It hasn’t ended, and people need to know that, because if people don’t know that, then they’re living in this fantasy world that isn’t real.

Going back to the jurisdiction issues, it seems there is no quick fix here. There’s one part of me that’s wondering what legal amendments or changes could be made in tribal, state, or federal law enforcement and prosecution procedures.

Then my second thought is that I know one way that the indigenous rights and land sovereignty movement has been articulated is through the framework of free prior and informed consent, or FPIC. This phrase comes from the 2007 U.N. Declaration of the Rights of Indigenous Peoples (UNDRIP). It states that indigenous people must grant their free, prior, and informed consent before an action is taken that impacts their land and rights.

Now in practice, however, FPIC has not been honored, and true consent has been violated by the state and corporate entities over and over again. I’m wondering, how has the integrity of
FPIC been hollowed out, and, in many cases, replaced by tribal consultation, or really meaningless gestures that claim to fulfill their obligation of FPIC?

**RH:** We did an entire tour in Europe on this specific issue. FPIC sounds great and when people hear it, they have a good feeling of like, “Wow, they’re talking to the people before they actually make decisions.” It’s another one of those things where I could have a friend who knows a friend that told another friend something. Then that one friend will come back and say, “Oh, yeah. Well, I talked to that original source.” Really, it’s a telephone chain where it’s five people down the road and then they come back and say, “Oh, yeah. Well, we had a conversation.”

We see a lot of that happening, even with a lot of the large environmental organizations that we’ve had the opportunity to have discussions with. We’ll ask, “Okay, well are you developing relationships with communities?” They’ll say, “Oh, yeah. Well, we talked to this one person who knew that organization and they said it was okay.” That’s a lot of what our government is doing; they’ll go and talk to one of their people that knows somebody else and uses that as free, prior, and informed consent.

Standing Rock and the Dakota Access Pipeline were prime examples of that and showed us that those conversations don’t happen, that those agreements are not happening beforehand. These oil companies, for example, have for so long been allowed to commit these atrocities, but also get these projects funded. They’ve been able to buy their way through and ignore what indigenous people want and ignore the fact that these sacred lands mean something to us, but nothing to them.

I have to admit it was frustrating when the Notre Dame Church over in France had burned down. It’s sad that building burned; it holds the history for the French people. Well, the same is true for our lands. To see people mourn and come together for a building, but not willing to come together for indigenous people who are violated on a regular basis. As much as I know, that framework in the U.N. has good intentions, the sad part is that it’s just not actually being carried out.

I’ve sat down in bank board meetings firsthand. At the end of the day, they don’t want to hear our history, they don’t want to hear about genocide, they don’t want to hear about violence and desecration. They want to hear that this is great for their economy, which means it’s great for their pockets and the 1 percent. Free, prior, and informed consent is not happening all over the world with indigenous people.

At the end of the day, the teachings of indigenous people are really what’s going to bring back the saving of our Mother Earth. Environmental groups are realizing that, and even scientists are realizing that we have to go back to these teachings. I think the conversation of free, prior, and informed consent has to keep happening even if the intentions of it are not being met. My hope is that one day they are.

**AY:** I’m thinking if we get these banks to divest from fossil fuel projects, what do you want them to invest in? On the one hand, we need to mobilize individuals and companies and cities and academic institutions to be politically active and draw a cultural boundary around dirty money.

Then, of course, I think, “Well, is there such thing as clean money?” if all companies eventually lead back to resource extraction and the desecration of the Earth. I’d really love to hear from you, what would you like to see banks invest in?

**RH:** I think the obvious are always education, green energy, affordable housing, putting decisions back in the everyday people’s lives.

Instead of banks making these decisions to go invest billions of dollars into pipelines, why can’t we as communities make the decision to direct that money to places like Flint, places where there’s uranium leaking into their drinking water in Arizona and they can’t access clean water?

It’s like I said, indigenous people are in this fight and leading this fight because we are the first ones affected by climate change. This fight is for everybody, but it’s also to stop them from making us invisible. Why can’t we be CEOs for Chase banks? The reality is that those banks don’t want to make good, wise, morally sound decisions. I think that’s what they’re afraid of.

They want the same people within the old system of patriarchy to come in and tell people how to live and what to be and what
to do, instead of actually really wanting to put money towards compassion, caring, the healing of people, affordable housing, homelessness, and fighting bigotry.

Ultimately, I think whatever decisions are made, they should be working towards the good of the greater man and working towards healing and what’s going to bring good to our communities. It’s not investing in fossil fuel projects, it is not ignoring places like Flint, it is not ignoring human trafficking, it is not ignoring any of these issues. It’s actually getting involved in them and truly making decisions that are going to heal people and not looking out for 1 percent.

**AY:** I really appreciate that because I think for many of us, we need to be guided by a vision forward. Yes, of course people need to hear about divestment, but we also need, I think, to hear about what are the things we need to invest in on an individual level, on a county level, on a global level. I really appreciate both of you for speaking to that.

Now I want to move on to another question. I see that there’s this other common thread between Mazaska Talks and Missing and Murdered Indigenous Relatives No Borders. It’s the important work of decolonizing data and shedding light and awareness on these crises that are often erased from the mainstream media.

When it comes to MMIWG, the National Crime Information Center reports that in 2016, there were 5,712 reports of missing American Indian and Alaska native women and girls. The U.S. Department of Justice’s federal missing persons database, NamUs, only logged 116 cases. Roxanne, how does this complete negligence in reporting and data collection perpetuate the crisis itself, creating a gross misrepresentation of the scale of MMIWG and obscuring critical information?

**RW:** When you look at that, the 116 cases that were logged, there’s a definite percentage that’s not been reported. It’s really hard—and I can vouch for this and I know Rachel can, too—but calling the police has never been a good thing. Whether it’s tribal, whether it’s a sheriff, whether it’s Seattle City, whether you’re on reservation, off reservation, just the police in general have been very non-empathetic, very rude, very disrespectful in so many ways.

Look at Renee Davis. They were supposed to do a welfare check and they shot her, a seven-month pregnant woman and a mother of three. Why do we want to call the cops? Remind us, because they haven’t been an entity that has served us, or protected us, or treated us like human beings. That’s one part of it. The other part of it is that when filing these cases, often times families were being met with the response, “Oh, are you sure she’s not drinking or with a boyfriend?” Families have been told things like, “Oh, well. Come back if you don’t hear from her. Are you sure you want to make a case?”

The really inhumane part of it is that our missing and our murdered have been dehumanized even after being murdered, being called homeless, drunk, prostitutes, many derogatory terms that law enforcement and mainstream media use. Do you see? There are layers and layers to this.

Anita Lucasey, who is a Native American woman and a cartographer, has been very instrumental in decolonizing data. She’s been working on a database and collected names from here to Canada for I think about three years, or a little bit longer. She has a pretty good number going and she’s doing some amazing work. I rely on her data more than I would anybody else’s.

We, as indigenous people, we know the issues. A lot of people want to speak ahead of the families. They want to speak ahead of survivors and they want to speak ahead of the grassroots people, but it is us. It is survivors and it is grassroots people who have been on the frontlines, who have been holding each other’s hands to make sure that these families are receiving justice.

Can I say some names real quick?

**AY:** Please.

**RW:** I want to say my cousin Lucinda has been missing since October 2nd of 2018. Alyssa McLemore has been missing since 2009 from Kent, Washington. Leona Kinsey has been missing since 1999 from Oregon. Matthew J. Bronco has been missing from Fort Hall since April 20th of 2019. Esther Smith has been missing since 2009 out of Everett, Washington. Like I said earlier, there’s more than that. I could say so many names. I have lists upon lists of families. Those are some of the people that I’m working with right now.

It’s heartbreaking. I wanted to say those names, because it’s important to use these moments like this to put these names out. You can hashtag these names and find flyers for these people or you can go to Missing and Murdered Indigenous Relatives No Borders. Thank you.

**AY:** Thank you, Roxanne. That felt really important to name them in this conversation.
Ayana Young is a podcast and radio personality specializing in intersectional environmental and social justice, deep ecology and land-based restoration. She is the Founder and Executive Director of millennial media organization and nonprofit For The Wild, which encompasses the 1 Million Redwoods reforestation project (forthewild.world/1-million-redwoods-project) and the Tongass Forest campaign and film When Old Growth Ends (forthewild.world/when-old-growth-ends).

Rachel Heaton is a member of the Muckleshoot Tribe of Auburn, Washington, a mother of three children, a fitness trainer, a lover of nature, and an activist. She is Co-Founder of Mazaska Talks, an indigenous-led organization that offers tools to help others divest their personal finances, cities, and organizations from Wall Street banks funding the desecration of Mother Earth (mazaskatalks.org/).

Roxanne White is a fearless and dedicated grassroots organizer and social justice advocate in Indian Country. She is Yakama and Nez Perce and a lifelong resident of the Yakama Indian Reservation. Recognized nationally for her work on Native issues, Roxanne serves as the Indigenous Outreach Coordinator for Innovations Human Trafficking Collaborative in Olympia, Washington and works to amplify the voices of Missing and Murdered Indigenous Women across North America.
Empathy and Entanglement

MATT STANSBERRY, TREBBE JOHNSON, LISA RAINSONG, AND GAVIN VAN HORN

Editor’s note: The following is an edited transcript of a panel discussion that took place at the Cleveland Museum of Natural History’s Conservation Symposium on September 16, 2019.

Matt Stansberry (MS): The basis of this panel was to bring together a transdisciplinary group. This audience is largely a gathering of biologists, policy folks, and people working in the field of conservation, and what I wanted to do with this panel was bring outside perspectives on the big challenges.

And I wanted to start by showing a photo of a couple trees from North Carolina where I live.

Joining Trees. Matt Stansberry

They are a red oak and red maple and they are merged together. Their entire existence—how they get nutrients, their growth—it’s all enmeshed. It is very hard to separate where one species starts, and one stops. The health of these two is entwined.

And these trees are a lot like the challenges we’re facing: biodiversity loss, climate change, and income inequality. All of these issues are entwined.

And my tendency, with that very American male-centric mindset, is that I want to try to fix these issues. But we need to consider that there are issues of the heart we need to address first. We may need to better understand our place in the world, to understand how we make meaning and find happiness, in order to get the perspective we need to address entangled, intractable problems.

So with that, I want to start by talking about an issue a lot of folks in this room struggle with: loss.

The Eremozoic Era was a term coined by biologist and author Edward O. Wilson, and the idea is that we’re entering an Age of Loneliness. We’re all dealing with a lot of loss, and I wanted to start with Trebbe, because her book really deals with the question of how to accept loss, to live in landscapes that are injured and no longer function the way they did before.

Trebbe Johnson (TJ): So this question about finding joy in the hard times, which is the subject of my book [Radical Joy in Hard Times], I think you have to start with acknowledging the hard times, acknowledging the sadness and sorrow of that.
I’d like to tell a story about the necessity of keeping the balance of joy and sorrow in our consciousness. My organization, also called Radical Joy For Hard Times, did a program in the Gulf Coast a few weeks after the BP oil well was capped, after it had been spewing oil into the Gulf for several weeks.

The woman I worked with was from Baton Rouge, and we went down with some people and were creating a labyrinth in the sand on Grand Isle. It is a long skinny island with its broadside facing right into the Gulf, so all of the oil and dispersants were coming right into shore. And as we were building this labyrinth, we noticed a pod of dolphins leaping really close to the seawall. We were so excited and ran out there, just delighted. But then gradually the realization fell over us of just what these animals were facing. Every time they dived back down, they were diving into toxicity. They probably didn’t have long to live. So on one hand we had this delight in seeing these dolphins, but on the other hand this grief from what these animals are facing.

It became clear to me that in order to survive and actually find meaning in the world as it is right now, you don’t have to choose between joy and sorrow; they’re both always right there. You can feel them both, and at the same time.

It’s almost like having two feathers—one feather in each hand. One is joy and one is sorrow. And by opening up to one, we are more able to be open to the other. By opening up to the possibilities of both of them, we become more deeply grounded in meaning, and in the places where we live and that we love.

**MS:** Lisa, we’ve talked about how you’ve found insect species in places where they haven’t been before, locations where they should not have been, and how that demonstrates that mixture of joy and sorrow. Can you talk to us a bit about what you’ve observed in your studies?

**Lisa Rainsong (LR):** One of the things I’ve been studying is species moving north. I do have mixed feelings about that. I get excited when I find a species that has only been as far north as Tennessee and then I find it in Ohio. Or the insects whose songs I recognize from hearing them down in Dayton, but now they’re up in Cleveland. Part of me says, “Welcome, I’m so glad you’re here!” But part of me says, “Oh... why are you here?”

And when I give talks at programs and point out to people about range expansion, I always talk about the species moving north. “But you notice, I haven’t said anybody is moving south.” People laugh, and then they get it, I think.

I also think about the species for whom we are on the southern edge of their ranges. There will be a time I’m not going to hear them anymore, not because of my age, but because they are moving north out of here. I’m already paying attention to the species I’m finding less often here.

And that’s one example of the joy and excitement of finding someone new in the neighborhood, but then knowing that the reason it happened is that the climate is warming fast enough that I can see and hear this from one year to the next, tracking changes over time right here in Northeast Ohio.
**MS**: Gavin, your book *The Way of Coyote* is centered around the urban area of Chicago, and to me it doesn’t feel like a particularly wild landscape. But you find joy and connection there. Can you tell us what it’s like to find joy and connection in urban places?

**Gavin Van Horn (GVH)**: I’m sure there are so many similarities between Cleveland and Chicago. As I drove here this morning, I was amazed at the tree canopy. And here at the Natural History museum, learning about local heroes who have been expanding parklands and studying wildlife and taking young people out—it’s really heartening to know that this is happening in cities across the United States and the world. It’s great to see that honored.

As far as Chicago goes, I do think of it as a wild place. When I first moved there, I didn’t necessarily expect that. I came with an open heart, not kicking and screaming necessarily, but wary.

I was hopeful, with Lake Michigan and the forest preserves, that there would be a way to get to know my non-human neighbors. Part of my orientation to living in the third largest city in the United States was learning who was here: peregrine falcons flying at over two hundred miles per hour to hit pigeons from skyscrapers in downtown Chicago, the coyotes on the golf courses, the opossums and skunks roaming the alleyways, the fish and the mink and the snapping turtles, the heron trifecta (black-crowned night heron, great blue heron, and green heron), the way that the rivers concentrate life in the same way your rivers here do.

So when I think about finding joy in the age of loneliness, it’s a question of belonging, feeling as though we do belong here. But that belonging is a collective one, within a multispecies community. At one point, in my mind, I considered cities and nature to be in duality with each other. But Chicago has shown me a landscape continuum. The wild and the urban are much more intertwined than most of us are brought up to believe.

As for me finding my joy, or other people finding their joy, I think that joy comes from a feeling of connection, that we belong, and that the city plays a huge role in that. The talk [preceding the current panel] that was given about nearby nature—our intimate spaces that are in close proximity—are so formative in how we think about the world and the story we carry around with us.

**MS**: Trebbe, in your book you talk about creating art and joy in damaged places. Can you talk about what that process is like and what we get out of that?

**Trebbe Johnson (TJ)**: In the organization I’ve created, we really wanted to find out if there was a way for people to connect with the places they love that were damaged or under threat, in a way that’s particular to each culture and community. So we deliberately kept the suggestions very open. The suggestions are very simple.

The first step: go to a wounded place, alone or with friends. That’s important because just thinking about it from afar, maybe you think, “It’s too depressing. I don’t want to go there. I’ll fall into this pit of grief and I’ll never be able to get out.” But actually going there, you find the beauty. You see the place as it actually is, as it’s struggling to survive, to regrow—to cope. You see it for yourself and not as your imagination has portrayed it.

The middle step is to be there and just gaze. See what the place has to tell us, rather than going in wanting to judge. It’s often amazing what we discover.

And the last step is to make a gift for this place. So often we’re concentrated on what nature is giving to us, how we’re receiving nature. But nature has given so much to us. This is our opportunity to give back.

We recommend giving back in a very simple way—by making a gift of beauty for the place. You make it out of material that is found there. Sticks, stone, sand, or trash even that you take out at the end. The people make this gift together; it’s anonymous. It’s not final. You’re only the first artist. The wind, the rain, the waves, the animals will take it away. But there’s something very profound that happens when people make a gift for place out of the materials the place itself provides. *It’s a way of affirming that everything that’s needed to make and recognize beauty is already there.*

Just this process—of putting things together with other people and leaving it—is a way of saying to the place, “This is for you.” There’s an aspect of connecting. People leave feeling empowered in a way that they didn’t feel when they arrived in this place. They feel that there is something creative that they can do. They can do it at any place, at any time, no matter where they are. It’s a way of connecting back with a place that you formerly felt disconnected from.

It’s so magical. We see it over and over again. We have a day every year in June, the Global Earth Exchange, where people all over the world are invited to do this. We have a group of young people in Afghanistan who have a permaculture garden they work in. We have a group in Bali that goes to rice fields that have been damaged. We have people who go to Superfund sites and make art on the gates that prohibit people from...
entering. There is something profound about just recognizing that you can go to this place. The love that you feel for a place is reawakened in this process.

**MS:** One of the things you said last night when we were preparing our panel, which I thought was really good, was that this is not a replacement for activism or policy, but there is always room for this healing.

I want now to jump to a different topic. I am lucky enough to spend time in the woods meditating, thinking, and interacting with the more-than-human world. And I can say without a doubt, these beings have changed my life, my behaviors, my morality. It makes me a better person to think with the more-than-human, to work with them. They inform a lot of the decisions in my life. And I am curious to hear from the panel, what are you getting out of your interactions with the more-than-human, and how does it inform the decisions you make?

**GVH:** The thing that jumps to mind immediately is the cultivation of attention. At some point, I realized, in more than a theoretical way, this is a conversation. Whether I was walking through the city, kayaking on the Chicago River, or roaming in some other way, that this was not a monologue. Trebbe alluded to this, in offering a gift, and not just taking. There’s a reciprocity. So when we’re interacting with other species, think of it as a multipart conversation, one way of listening.

A metaphor that occurred to me is thinking of our bodies as an instrument. We’re exquisitely designed to receive through all our senses—not just seeing, but hearing, taste, touch, everything. We consider everything occurring in nature as outside of ourselves. But an activity like birdsong is actually occurring deeply within us as well. It’s being translated through our eardrum, and electromagnetic signals in our brains. We are permeable. Our skin is not the end of us. It’s really a kind of beginning. It’s the medium through which we receive what the world is offering.

Take that thought with you next time you walk in the woods. You are an instrument. Maybe we can think of ourselves as a drumhead. Maybe you are an oboe or tuba. You are not just coming to the world unilaterally from your perspective. It’s playing you.

**LR:** I teach ear training at the Cleveland Institute of Music, and when I also teach ear training in my naturalist programs about birds, amphibians, or singing insects, I find it is a very different way into people’s awareness.

This is not the first entry point people expect. People are very visually oriented. But when they hear something, it can
jolt their understanding. Then people can realize, it’s not just about identifying the song of a short-winged meadow katydid. It causes them to ask, “Why are they there and what are they doing?”

Have you seen how beautiful they are? Isn’t it amazing to walk outside at night and not see anybody, but you can hear this concert all around you? That impacts people a lot. It gives me an entrance to say, isn’t this a wonderful concert? This continues as long as we don’t poison the musicians or bulldoze their concert halls.

For me personally, it resonates so deeply. I’m a musician; it’s the core of who I am. But there is a lot I can communicate to other people through listening. It opens a new sensory pathway because people are often so visual, they haven’t noticed as much about what they hear.

One of the things I do with people who have difficulty hearing, I give them my headphones and microphone and have them just listen. I will have them move the microphone up and down and hear that there is a concert at every level, from the tops of the trees to the ground. In spring, I ask them to listen to the different sounds a red-winged blackbird makes and then watch and see what that indicates. What are they doing? Why did the song sparrow change his song to a different one? Did you hear that cardinal change to match another cardinal? All of this input opens up worlds for people.

**MS:** Trebbe, to that question of listening to the more-than-human—in your book you brought a group of people to a recent clear-cut. There was a lot of trepidation about this place being oppressive, but you found a way to notice life in this damaged place. Can you tell us a bit about that story?

**TJ:** When I was first exploring the idea of going to wounded places and discovering what we could find and give there, I took a small group of people to a clear-cut forest on Vancouver Island in British Columbia. We camped in an old-growth forest, ancient trees eight hundred to nine hundred years old, but all around were acres of gray hillsides from the devastation. We would go out in the morning our separate ways, into the clear-cut, and then come back in the evening to make dinner together and share our stories.

And I loved what Gavin said about how we are permeable. Over the week, this clear-cut forest got into our skin and our ears and hearts in a huge way.

There was one woman who came back to camp one evening and said, “Is it inappropriate for me to see beauty in this? These wildflowers, these birds singing?” She started making altars on the tree stumps that represented different phases of her life where she felt hurt. Making beauty on these stumps was a way to mutually heal the forest and herself.

One of the other guys who had come to this event was in the midst of having a lot of trouble with his wife. He was sitting...
in the clear-cut one day, got bored, and wanted to leave. And then he heard a voice in his head that said, “Sit a stump.” Sit a stump! He thought, “I’m supposed to stay and hear what I have to hear, see what I have to see.” And through that, he realized he had a habit at home, whenever his wife would bring something up that he didn’t like, he would want to leave. He needed to sit patiently with her like he was sitting with that stump.

For me, I went to the same spot every day and sat on this enormous tree. I could lie down almost entirely flat on this stump. One day I saw a mother bear and her two little cubs dancing along the debris of the clear-cut. There were birds. There were insects making a home in the hole in the trunk. And at the same time, there was this landscape of devastation, loss, and sorrow. And the awareness of how much we use paper. Paper towels we throw away. And there was distraction—things I have to remember to do when I get home, someone I have to call, someone I’m having a problem with that we need to fix.

I was experiencing this huge mix of delight, grief, the trivial, and boredom. And it was truly profound to spend a whole week there. And we did a ceremony together right before we left. We stood there looking over these vast acres of clear-cut, and all just said, “We are in love with this place. It got into us.”

MS: I really like one of the things you say in the book, that the past and the present of a place are co-existent. They’re still there, like an injured or disabled friend.

I want to jump to the topic of empathy. Last night, we said “Healing community and ecology at the same time is hard. Healing just one is impossible.”

So on the image “Healing Ecology and Community,” you see my friend David’s viewpoint of what the Mentor Marsh bird-walk is like. You see maybe $50,000 worth of cameras there? The Patagonia hats and vests. And you contrast that wealth against the economy of Ottawa and Lucas County, Ohio. And for a lot of conservation areas, the people who live and work in those places aren’t the same people wearing $400 raincoats.

Mark Schlack is a science fiction writer who was supposed to attend our panel but fell ill. He writes about how catastrophic climate change essentially craters our society. And the only way out of this spiraling disaster is radical empathy, to be able to take in the viewpoints of others, to communicate with people not like ourselves.

In conservation biology, we have specific goals and policies we want to see enacted. But we need to look at healing the community as part of the mandate to achieve this.

Take a semi-fictional composite character from my area in North Carolina as an example. Somebody’s grandfather is yelling xenophobic chants at a Trump rally. Maybe he lives downstream from a Duke Energy coal ash pit and industrial hog farms on the Coastal Plain. He’s seen three five-hundred-year floods in five years. He’s hurting, too. He may not agree with me on a single policy point, but we have to communicate. How do we engage and have the conversation with the community? Where do we start?

In conservation biology, we have specific goals and policies we want to see enacted. But we need to look at healing the community as part of the mandate to achieve this.

TJ: The way I always begin the conversation with people who are curious about what I do and what I write about is to say, “Can you think of a place in your life that you really loved, maybe when you were a kid, and something happened to destroy it? How did that make you feel?” Typically, there’s an answer right away—there was an old neighborhood or a wetland that was turned into a golf course. That starts the conversation.

People will say: There was a place that I loved, and something happened to it, and I felt really sad about that and just never knew what to do about it. And what I’m trying to do with my work is to say, there is something we can do. It’s accessible, handy, and small, and it doesn’t cost anything. You don’t have to call people at dinner and ask them for money. It’s just something you can carry in your pocket. It begins with the question, Was there someplace in your life that you loved and that you lost?

GVH: I think if we’re to have any hope of working with people who disagree with us or have different viewpoints, we need to work in the commons—common interests, common ground. Find a project that is already meaningful to both of you. That opens up communications about things like childhood or parenting. It brings you together, rather than keeping you at a distance and coming up with a quip or a takedown, like the things we can say anonymously online. Getting into the physical space with another person, that’s a hopeful area.

An example from my book that intersects with this. Aldo Leopold told us to think like a mountain. Lisa Hish was about thinking like a bee. She looked at the corners of her
neighborhood and saw neglected pavement, scrubby non-native species at four-way intersections. And because she and her partner had become amateur apiarists with beehives in their backyards, they were starting to think of their neighborhood as habitat.

As other neighbors got interested in what they were doing, they thought, How can we take these spaces and transform them? Three or four families would adopt a street corner, and there were very few rules, except to plant native plants. People decorated it, creating art. Some people built bird boxes or bat boxes. They built a linear corridor through the neighborhood that they call a pollinator pathway, and it’s transformed a lot of people’s view about life in the neighborhood, and what’s possible in those smaller spaces.

Those kinds of common projects open people up rather than closing them down.

Was there someplace in your life that you loved and that you lost?

LR: I agree with everything they said. The only thing I’d add is not connected to what they said but connected to the words [“healing,” “ecology,” and “community”]. Something that really struck me is that ten years ago when we were first having programs about the climate crisis and the extinction crisis, I was just so internally devastated. I was really struggling with my response. What do I even do? I feel so alone with these feelings because nobody seems like they’re ready to talk about it.

We are having this conversation now. And I look at the words “healing” and “community,” and I think we are a healing community for each other. We’re sharing our experiences, feelings, our perceptions, our fears, how we find joy. That is really powerful, and essential, for all of us and our own health.

MS: One thread through what Trebbe, Gavin, Lisa, and I all do is to create art, and it’s in co-creation with the natural world. And I’d like to hear what each of you think about how we perform co-creation, and how does that kind of art function in the universe? What’s its purpose?

TJ: I feel like I would call it making a creative gift, rather than creating art. Because art might be scary to people who do not think of themselves as artists.

As we become more challenged on this planet, we recognize the kinds of things we will be facing. Communities are going to be damaged. There will be fewer species of all different kinds. Wildernesses will disappear. So we need to understand not just how to deal with this existence, but how do we find meaning and joy within it? I believe that making a creative gift connects us with these places. Remembering what we love about them. Finding beauty in them right now. Finding kinship and collaboration with our neighbors who care about this place, whether they agree with us politically or not. Coming together and being outside of ourselves, making a gift for the place we love, and acknowledging that a place has given us a lot, and that this is a way of giving back.

That is a way to bring people together, reconnecting with the land, finding empowerment and creativity and joy in oneself and in the landscape. It accomplishes a whole lot of things in a simple way.

GVH: I love the way Trebbe emphasizes gift-giving, and how it completes the loop we live in within the natural world. A lot of us grow up thinking that humans are inherently degrading of our environment, and that all we do is take. There’s a real beauty in making that perceptual shift where we’re offering back. Maybe it’s not enough. Maybe it’s never enough. But there’s something in the act that transforms us.

I think a lot of you are probably actively involved in ecological restoration. It’s an act that’s ongoing, it’s never quite complete. And yet, there’s an offering going on there. You’re becoming part of the cycle when you’re gathering seed or burning a prairie. You’re integrating your own life in a kind of gift-giving act.

Also, there’s something about art that bypasses our analytical minds. It goes right around and hits us here [in the chest], without our logic being able to stumble over itself.

There’s a piece of art on the 606 Trail in Chicago. The trail is two miles of abandoned elevated train line that runs above the city streets and was transformed for cycling and walking. There are art installations along the trail, and currently there is an art installation that features one hundred eyes of birds. It’s a sculpture of realistic eyes of threatened species. It’s an example of how art, even if you don’t know the exact intention, can speak to you about the subjectivity of the natural world. It’s making a demand that you be in relationship. The human imagination, and art as an expression of that, is one of our greatest assets.

LR: The mic comes back to the composer who doesn’t always follow the rules. I was thinking about what you were saying about the restoration work. I think that’s creating art. You people [the conference attendees] notice what’s going on with
the parks, the places being seeded with native plants and how gorgeous they are. You notice how all of this rain, the new meadows and prairies, how beautiful it sounds. We should consider the people doing habitat creation as artists. They’re creating concert halls. People creating little oases for life on their own properties. I think that’s also art.

[Art is] making a demand that you be in relationship. The human imagination, and art as an expression of that, is one of our greatest assets.

**MS:** I really like what you’ve all said, especially the idea that we humans, as part of nature, need to realize our relationship isn’t loss only. Our role isn’t to take only. It’s also to give.

Mark, our missing panelist, writes in a post-climate crisis fiction genre. And when you look at that genre, you see almost a longing for that collapse to save us, to force us to change direction. But in Mark’s book, and what you hear today from our panel, is that we need to make a choice about what we do want. The collapse won’t save us.

Let’s turn the questioning over to the group. What would you ask each other?

**GVH:** One of the things that really resonated for me when I read Trebbe’s book was the idea of waste as an orphan, and I wanted to see if she would say a little more about that.

**TJ:** I started on this journey of rethinking wounded places in 1987 when I did a video interview with an Oneida Indian man named David Powless. He had received a National Science Foundation grant to recycle steel waste. He described going up to this huge pile of steel waste at the Kaiser Steel plant in California and climbing up to the top and in his eagerness and ego, he said, “I’m going to conquer you.” And then he got back down to this car with his samples of this ore and realized that this is not the way he as a native person was raised in a traditional home to think about nature of any kind. He said he realized that the waste was not an enemy to be conquered, but an orphan that had been separated from the circle of life, and he said, “My job is to bring it back to the circle of life.”

I was so touched, it started me off on this search that is Radical Joy for Hard Times. I dedicated my book to David, and he’s excited that his work has branched off in all these directions. I’m still so moved that we can look at all these places that are beyond saving, ugly, broken, or toxic, and say that this is an orphan from the circle of life. What can I do to bring it back into the circle of life? Maybe that’s scientific, maybe it’s legislative, maybe it’s educational, maybe it’s artistic. All of those things are vital.

Maybe it’s just bowing and saying, I’m sorry these things have happened to you.

**MS:** Let’s take a question from the crowd:

**Attendee:** Hearing an in-depth conversation around healing in the environment really spoke to me. My heart is pounding. I’m feeling all of these different emotions. Growing up in inner-city Cleveland, being in foster care, and going through abuse when I was younger, nature was my healer. It started out as therapy and then education. Thinking about nature as a giver, and then giving back to it; and also learning from nature and then wanting to teach it. Nature has reconnected me back to human beings, and understanding, empathy, and patience. Can you speak to how anything like that has happened, or transformed your experiences?

**GVH:** You already expressed this so beautifully. I can think of a thousand examples where nature has had that same healing function for me. And I’m so glad the idea of healing is being highlighted, not just physiologically or psychologically, but socially as well.

Nature is what we come out of; it is what we are always immersed in. When we see brokenness in the world, and the expression of that through violent action, I think a lot of it can be traced back to a primal woundedness, a feeling of separation from the land.

Speaking personally, I’ve gotten to know my non-human neighbors as important participants in the place where I live, and it’s served to cultivate the kind of empathy we’re talking about that makes me see how I can live in such a way that the whole community of life is in my thoughts.
LR: Thank you for all of that. I’m going to be more personal than I typically would because of your courage. The way that I grew up, it was not good. However, what got me through sometimes was, when it was still dark in the early morning, the robins would sing. The song of that robin was such a consolation to me. Robins perceive light before we humans can; that’s why they sing before dawn. And there were times those robins got me through, because they said dawn was coming.

Later in my life, dealing with the repercussions of all of that, I remember a very specific time when I thought, I can’t even go to work, I can’t leave the house. What got me through? House finches. Just a couple of house finches sitting and chattering outside my window. They just brought me right into the present in a way that nothing else perhaps could. Maybe they were the perfect bird for that.

I think there is a lot of healing power in all of nature, whether it’s visual or what we hear. Sometimes the auditory can be a powerful healer. I work in a completely different field than natural history. All of the stuff we’re talking about, it belongs to all of us. It’s not just something for biologists, which is something many people think.

TJ: I, too, was a kid who found refuge in nature in a very dysfunctional household. What I found with this idea of making beauty in wounded places is that facing the sorrow and making beauty together is very healing.

On one of our Global Earth Exchange days, I got together with a bunch of people in my community in northeastern Pennsylvania. It’s a very rural, conservative, and poor area. We did a Global Earth Exchange on the Susquehanna River, which a few years ago was named the Number 1 Most Endangered River in the country because of natural gas fracking. People who have very different political ideas, of all different ages, all came together that day at the river. We talked about how much we love the Susquehanna River. We built a wreath of flowers for the river and placed it in the water. People come together in a way when they love a place. It’s something deeper.

The last words of my book are “the ground beneath our hearts.” There is something that is beneath human difference, when we put our feet on the Earth where we love, and say, “This is mine and I love it and believe in it.”

Matt Stansberry is a recent transplant to the Piedmont of North Carolina, living in the city of Burlington. He previously studied the wildlife of Cleveland, Ohio. His book, Rust Belt Arcana: Tarot and Natural History in the Exurban Wilds, examining the flora and fauna of the industrial Midwest, is available from Belt Publishing.

Trebbe Johnson’s books include 101 Ways to Make Guerrilla Beauty and Radical Joy for Hard Times. She is the founder and director of Radical Joy for Hard Times, a non-profit organization devoted to finding and making beauty in wounded places.

Lisa Rainsong is a music theory professor at the Cleveland Institute of Music. She lives concurrent lives as both a professional musician and as a naturalist whose survey and education work focuses on Earth’s first musicians and protecting their concert halls. More information on her work with birdsong, amphibian song, and especially the songs of crickets and katydids can be found at listeninginnature.com.

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In a field surrounded by budding, deciduous trees, a crowd of ten-year-olds is staring at a naturalist describing the spring wildflowers of Northeast Ohio.

I am standing in the back with my mom, whom I am visiting for the day. She is a special education assistant at the elementary school, where she works with students as a one-on-one aide. Today she is along on an end of the year field trip to the Brecksville Metropark.

While assistant may be her formal title, it is fitting to describe my mom as the enforcer of the classroom. While the teachers are tasked with staying on schedule, my mom listens with the hearing of an owl for the soft chatter of children. She does not hesitate to shut down conversation between the fourth graders with poor field trip etiquette. Most require repeated instruction to be more respectful, often groaning in response to her intervention. Within the first half hour of the excursion, I can pick out the troublemakers with ease. When moving from location to location, I make a remark about how exhausting the kids are. “Now you know what I deal with every day,” my mom jokes.

Animals change behavior with the seasons. Birds migrate in the spring and fall while bears hibernate in the winter, but human behavior is perhaps most visible and disruptive in the summer. Examples include vacations and grill-outs. Wardrobes are another one, with shorts and Hawaiian shirts emerging from closets to see sunlight for the first time in months. My mom theorizes that the coming season makes younger humans especially hyper, and I think this is a good theory. Some explanation lies in dietary changes. As spring ends, foods like ice cream and popsicles become abundant, and these contain high levels of sugar, which leads to sharp spikes in energy. However, summer also brings heat, which tends to make kids sluggish. While a forest might give off a rhapsody of screeches, hollers, and hoots, a gaggle of fourth graders has been recorded giving off whines in high temperatures.

As we begin to walk further into the field, the children struggle to keep up the pace. I extend my arms and point them at the ground, telling my mom that I’m a bulldozer who’ll scoop up any stragglers. She replies with a laugh, and luckily, none of the fourth graders fall too far behind. At that age they are heavy enough that I would not want to carry them very far.

We stop once more at the edge of the field where the naturalist lectures about milkweed and monarchs. There’s also a brief mention of milkweed beetles and milkweed bugs. I try to listen, but it proves difficult. Most of the information is not new to me. Truthfully, I’d love to be the one up there talking about the flora and fauna of Northeast Ohio. I am not an aficionado on much, but I do know a thing or two about the region’s biota.

When I am visiting home, I spend at least a few hours of each day visiting Cuyahoga Valley National Park, which includes the Brecksville Metropark. Unlike places such as Yellowstone or Yosemite, Cuyahoga Valley is not at all an unpopulated expanse. In fact, family farms dot the landscape, one of which is home to a student on the field trip. Industrial constructs are another unique feature. A pipeline, railroad, canal, two interstates, and powerlines crisscross the valley. Two skiing hills and the remnants of a quarry lie within the park’s borders, as well. Parts of a papermill can even be found at the east bank of the Cuyahoga River, and the buildings from its company town now house the park’s headquarters.

Some nature lovers might take this infrastructure as reason to squawk and growl, and I can’t blame them. Pipelines are a proven hazard to ecosystems, and interstates cut travel times...
at the cost of more noise. I would much prefer fewer human structures, but even with these ailments, the Valley remains a miracle of ecological resilience.

As you might have guessed, the infamous Cuyahoga River, meandering its way through the land on its way to Lake Erie, is indeed the waterbody the park is named after. Even today, it isn’t the cleanest of rivers, but it is healing. This is best seen in the critters who have recently come back. Over the past decade, bald eagles have returned and successfully raised young—fifteen of them, according to the National Park Service. Also the river otter, one of the park’s more elusive species, has been reintroduced, and now its ripples glide across the waters. Above all, the park serves as a useful classroom for schools in and around Cleveland and Akron, both formerly powerful industrial centers.

While I may have a lot of experiences with the park, being a good chaperone is the task at hand. To set a good example, I tune in again and listen to the naturalist, even though her
lectures are nothing new. Occasionally, I carefully scan the surroundings for forest residents, but only spot a few buzzards (known as turkey vultures outside of Ohio). The animals are on double duty, avoiding both predators and the midday heat.

We pass through the tree line and into a dim forest. A chipmunk observes our movement from a mossy log. Only a few scraps of sunlight drop through the ceiling of oak, beech, and maple leaves, landing in a gentle creek whose residents are a few minnows and a water strider. Along the trail, signs mark Mayapple and Jack-in-the-Pulpit, some of Ohio’s spring wildflowers, but the naturalist passes by these stops along the trail, scanning the ground for poison ivy instead. She spots the “leaves of three” and the announcement evokes chatter from the children. An itching rash is one consequence of poison ivy, and it does not appeal to ten-year-olds. Like air exploding from bubble wrap, stories about ivy affliction stampede around the forest floor. My mom and the teachers join forces to quiet the group.

Commotions like these are why I typically visit the park alone. I’ve learned this solitary style from people like Christopher McCandless and Edward Abbey, whose excursions have instilled a sense of adventure in me. After all, having more people on a hike tends to raise decibels such that wildlife will retreat unseen into their dens, nests, and lodges. To avoid this, I prefer to take my hikes along railroad tracks, which don’t have much foot traffic. This ensures that the surrounding area will be kept tranquil. While railroad tar may emit a piercing scent that disgusts others, my nostrils have come to associate it with joy.

This “trail” is far from dangerous. The railway happens to be scenic, and rather than chugging, “turtling” is a better way to describe the movement of Cuyahoga Valley’s train. It travels at a slow pace so the passengers don’t have their views warped into a blur; wildflowers or fall foliage do not jumble into a blob. On all occasions, the burst of the train horn will rush down the tracks long before the wheels and leave plenty of time for hikers to make the necessary steps to safety. But even with this limited danger, most humans remain deterred from walking the tracks. Instead of boots and tennis shoes, most of the footprints are left by hoofs, paws, and claws.

Even while these may be my preferences, I’m the visitor on this class outing and not the lead. I really can’t complain about the commotion. These are kids after all, and they’re having fun. Field trips are a break from long division or lessons about goods and services. They have good reason to be a bit crazy.

After a few muddy hills and shushes, we arrive at an amphitheater at the edge of a ravine. Curved wooden benches move out from a stone stage like ripples in a pond. Naturally, the kids jump from bench to bench, some chasing each other between the rows. Sit down! Sit down! Take a seat! The adults exchange eye rolls and half-smiles. They’re ready for summer break as well.

The naturalist takes center stage, giving instructions about visiting the nature center, the final stop on the tour. The fourth graders must leave things where they are, not tap on the animal cases, walk and not run, keep their voices at an acceptable level, and line up and be counted when it is time to leave.

Once again, my attention wanders, and I preform another scan of the forest. Nothing. Not even a squirrel can be seen. I keep looking, just in case, but it becomes time to move into the nature center, and a horde of children zips past me. My mom waits until the wave of childhood energy passes by, and only an echo or ripple is left in its place.

Like the light of a TV in a dark room, a glow appears in the greenery. It is not sunlight moving through leaves, but rather an interruption of color. Deep red hugged between black wings sparkles on a dead maple branch. The creature, another elusive resident of the deep woods, has come to visit, though it does not speak. While I’m accustomed to deer, rabbits, and bullfrogs, this sighting is a gem, one I have not had in close to three years. It is the Scarlet Tanager, who is about the size of a bluebird.
Now I am the one doing the shushing. “Stop, stop, stop,” I whisper to my mom. “There’s a Scarlett Tanager up there.”

“A what?”

“A Scarlett Tanager, up on that branch, at twelve o’clock, a bright, red bird.” I emphasize bright. She can’t pick the bird out.

I’m an avid birder. They are my favorite animals to search for in Cuyahoga Valley, and this is a big deal as far as avian sightings go. Herons are common and eagles have become old news, but the Scarlett Tanager is a find; it’s the one species I actively go searching for. Because this is so rare, I am nervous. Birds, like all wildlife, are unpredictable. For instance, you might spot a bird with your eyes and raise your binoculars for a better look only to be met with a bouncing, empty branch where the critter you seek used to be.

I crouch down a few inches to my mom’s height and place my hands on either side of her head, gently tilting it in hopes that her eyes become level with the Tanager. “I still don’t see it,” she says. I grow frantic as the bird crouches, suggesting that he is preparing to soar. A feeling of dread slithers through my body as I get the sense that the opportunity is ending. I try different tactics. I shuffle us over a few steps and point to a lamp. “See this?” I ask. “Follow this lamp up to the dead branch. You see the dead branch, right?” She nods. “The Tanager is just above the top of this lamp. It’s bright red. It’s bright and red. The bird is red and bright!” I reiterate this as a way of saying that you can’t miss it, but still she does.

The bird wiggles. My heart bounces.

A few, wonderful words then fill the forest. “I see it. Oh, wow, wow.” And to my surprise, the bird remains. I quietly extract my binoculars from my backpack, undoing the Velcro case with the same care one uses to hold an infant. For a minute, the Tanager perches on the branch, even as the muffled yells of fourth graders begin to be heard from the nearby nature center. My mom and I trade looks through the binoculars until the Tanager tilts his body forward, falling in a surrender to gravity. Then, black wings spread, he disappears into a shroud of leaves.

We exchange wows, some smiles, and then head to the nature center to help get the kids back to school.

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REVIEWS AND REFLECTIONS

BEAUTY AS HEALER
Jennifer J. Wilhoit


We need beauty desperately during these troubling times. Forced human migration. Climate change devastation. Polarized viewpoints. Losses of freedom, agency, the ability to survive. Needless deaths, human and ecological. It seems the list of atrocities and dire concerns is endless. It sometimes feels like there is nothing we can do that will effectively meet, much less reverse, the damage to which we bear witness every day. But even amidst the crises at hand, there is hope. For beauty is the way through to healing. This is why I heartily recommend Radical Joy for Hard Times by Trebbe Johnson.

Trebbe has been a colleague and friend of mine for years. From the moment I first met her—at a Pascua ceremony in a rural outskirt of Tucson, Arizona—I knew she possessed what it takes to meet the needs of a suffering world. The road was too dusty, and even the handkerchief over my nose and mouth was insufficient to keep the silt from penetrating my nostrils. Searing heat burned my exposed skin, and I rapidly became drenched by my body’s attempt to regulate my internal temperature. Dirt gave way to mud. I walked as if I had painted the soil on my skin. We moved at a snail’s pace, or a bit slower than that. The Easter ritual in which we were invited to participate entailed meditatively walking and pausing as part of a processional around the town. Holy tableaus had been created around the village, and the mix of Native American Yaqui and Catholic rites blended beautifully to honor both Earth and Christ. Afterward, there was a feast, and I found myself drawn in by stories Trebbe told at it: her work as a wilderness guide all over the globe, articles and books she had written, musings about beauty and ritual and how it holds a culture and people close to their land. She was steady during the Pascua ceremony (while I was feeling shaken and overcome by the oppressive heat) and articulately passionate about the role of beauty, ritual, and healing as we conversed afterward. She has much to teach all of us about wholeness in fragmentation, about the fierce need for passionate beauty and aesthetics, about revisiting wounds (outer and inner) in order to assimilate, learn, grow, and then heal from them.

Trebbe’s notion of healing from attending to the broken places on Earth is not just an outer landscape affair; it is a deeply

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Lunchtime Art
A Calendar Using Nature Objects to Count Days of the Month
inner healing one. A person can be made whole again by accepting the changes to a place, by grieving the losses, by adding something lovely to it as it is today. The reciprocity between our inner landscape and the outer one is palpable in this ceremony, this work, that Trebbe details so deftly in her book (p. 151):

1. go to [the] wounded place,
2. share your stories [and meaning],
3. get to know the place as it is now,
4. share what you discover,
5. make a gift of beauty.

So, this act, or series of actions in a specific location, includes inner exploration as well as outer abiding. It is about being onsite, in the wounded place. It is about reciprocity, giving back to a place just as we have received from the place. It is an embodied act of generosity, gratitude, compassion, and grieving. It is about coming full circle.

For ten years I have engaged in the Global Earth Exchange, Trebbe Johnson’s annual ritual for beauty-making in wounded natural areas. I first engaged in the ritual to support my new friend. But each year, my connection to and reverence for the ceremony has deepened. Now I look forward to, and invite others to join, the act of creating beauty in a wounded place. I call my part in this annual ceremony “Treephilia” and each year I find a wounded place in or near a forest, a stand of trees that have been cut down, or some other area in which fallen or damaged trees have impacted the natural landscape. And over the course of the morning, I craft—object by object—a bird image. Sometimes I have not returned to the site. Other years I have gone back to check on the state of the art I have created in a place. This year, I went back a few weeks later and spontaneously refreshed the bird image I had made after rain and wind had scattered bits of my creation. I have no idea if others who pass by pay any attention to or notice the beauty offering I have created in a place. But I know that I am indelibly marked by it. It makes me feel whole again in a location where brokenness has occurred.

A few weeks ago, I found myself back in Tucson, more than ten years after first meeting Trebbe there. I was presenting my nature-based, creative wellness work at an annual conference for conflict resolution professionals. In the course of the two-hour plane ride, I went from an outdoor temperature of 62 to 108 degrees F. I slithered from shadow to shadow in hopes of avoiding the onslaught of direct sunlight as we made our way to a rental car. I knew it would be exceedingly hot, dusty, and dry. But the forty-six-degree temperature difference, even mitigated by an air-conditioned conveyance and several hours of “acclimation,” was oppressive. As we made our way to the conference venue, I recalled the recent articles I’d read about how Tucson is suffering from environmental conditions: droughts, mountain fires, excessively high electricity consumption (air...
conditioners alone accounting for 25 percent). How outdoor jobs in the city are rapidly becoming untenable when the only sustainable time to labor outside is in the few hours just after dawn and for the last hour of light at dusk. Tucson is the United States’ poster child for the dramatic and unlivable conditions that global warming is creating and is the third-fastest warming city in the country. The elderly and children are not the only vulnerable members of the population; basically, everybody is at risk when the daily highs exceed 110 degrees for weeks at a stretch. But though my friend Trebbe was not in attendance at this recent conference, she was very present for me as I navigated a desert trail to a short peak at sunset one evening.

As I carefully avoided the spines of cacti and kept vigilant watch for snakes and scorpions crossing the path, I felt Trebbe’s encouragement to find beauty even in difficulty. Deserts are challenging for me: the heat and aridity, the starkness, the intense inner work I have engaged out in desert landscapes, the fact of my ancestral origins in the verdant and lush homeland of Ireland. I suddenly realize that, despite my discomfort, I am peering intently into the depths of a cactus, where the spike joins the green flesh; I take an abstract photograph—capturing beauty more than creating it, perhaps. But I will use the image as a creative tool for my work once I return home. And, indeed, upon settling back in my beloved Pacific Northwest several days later, I realized that I had taken nearly a dozen magnified images of desert plants—precisely at the point of convergence between plant parts.

This is what Radical Joy for Hard Times, her most recent book, does: it illustrates and encourages page by page, in the astute and compassionate voice of a wise environmental activist. Every chapter opens with stories—some are memoir-like anecdotes told with ferocious honesty; others are heartfelt stories of people Trebbe knows. All are tales that depict what happens at the convergence of landscape and human, particularly damaged places that are, or were once, loved by humans. Out of her own spiritual quest fasting in the wilderness, Trebbe was given the gift of her current work: to help find meaning and make beauty in places that have been damaged, destroyed, or transformed by humans. Ms. Johnson’s simple—but not easy antidote is to visit these broken areas, abide there a while, acknowledge the feelings that arise, tell stories about what was or what could be in the place, and finally, create an act of beauty there utilizing what can be found in that particular place. Trebbe’s compelling and instructive tome readily holds seeming opposites: beauty and loss, grief and joy, activism and quiet deliberateness. She defines her use of words (“activist, guerilla, radical” or “broken, beauty, joy, healing”) in a manner that highlights that these terms are not exclusive from one another, inviting the reader into her heartfelt ideas. For example, Trebbe describes “guerrilla acts of beauty” as those that are done “on the sly—spontaneously, unofficially, impractically... doing it because you are compelled to give a gift back to a place that has given much to you.”

It is timely that I write this review at the one-year anniversary of my mother’s death. As a longtime hospice volunteer and
REVIEW AND REFLECTIONS

a nature-based mentor for writers and other creatives, I don’t need to be convinced of the value of beauty or the need for joy even in stressful times. I know that beauty heals, soothes, and enlivens us. I use objects from nature and images of beauty (photographs, nature art, natural-object altars) daily in my professional and volunteer endeavors. Personally, I use beauty-making rituals for Earth-based (equinoxes/solstices) and spiritual/calendar/relational holy days (Christmas, Easter, Mother’s Day, anniversaries and birthdays, among others). I encourage and guide my clients to do so also. And when I am at the bedside of a hospice patient, I bring beauty to that place, too. One year ago today, I was sitting vigil with one of my sisters at our mom’s bedside. Surrounding the three of us were hundreds of beautiful images of trees, flowers, landscapes, fiery autumn leaves we’d brought inside, and other items from nature that we knew our mom loved. Just as I didn’t shun my mom when her disease took her ability to practice her vibrant and loving art, and just as I don’t avoid the difficulties or unpleasantness associated with hospice families and their dying loved ones, I do not turn away from the places on Earth that
have been damaged. Just as I embraced my mother, held her hand, sang to her and told her stories; just as I brought in vibrantly colored autumn leaves and ensured that her favorite purple hues were represented by the flowers that I purchased for her daily in her last weeks; just as I created altars around her room using pine cones and seaweed, grasses, shells, pebbles, seeds, mosses, lichens, and blossoms; so do I create beauty in hurt landscapes. One might suggest that Radical Joy for Hard Times is the choir book for a soul who already sings in delight of nature. But it is also a guidebook for those looking to heal relationships of all sorts, including with oneself and the hurt places outside and within.

Trebbe Johnson’s work, as she lays it out in the book, to me is not only about beauty as an antidote. It is much more profound and transformative than that. It is about becoming whole. It is about a notion of aesthetics that is alive, changeable, and perhaps even ephemeral. It is about being ready to be vulnerable. It is about the continuity of showing up to ourselves and to others, to treeless once-forests and coal mines, to fracking sites and to denuded landscapes. It is bringing together the honesty of pain and the unexpected result of joy and watching them co-exist in the unlikeliest places. It is about using at least five of our senses in the creating of something gorgeous—and perhaps six, including our Earth sense: spirituality, intuition. It is about embodied compassion for fragmentation, and the wholing that can come from reintegrating pieces into a cohesive present. Finally, Trebbe Johnson’s stunning book is about a practice that is at once simply elegant, and yet profoundly altering.

Photo Credits: Jennifer J. Wilhoit, Ph.D.

Celebrating Lynn

Jennifer J. Wilhoit, Ph.D. is a published author, spiritual ecologist, and the founder of TEALarbor stories. She compassionately supports people’s creative and healing processes by drawing from nature’s wisdom. Dr. Wilhoit’s most recent books include: Writing on the Landscape: Essays and Practices to Write, Roam, Renew (LifeRich Publishing, 2017) and Weaned Seals and Snowy Summits: Stories of Passion for Place and Everyday Nature (LifeRich, 2019), co-authored with Dr. Stephen Jones. Jennifer is a faculty member and partner of the Charter for Compassion’s Education Institute; an active board member of several environmental, peacebuilding, compassion-focused, and interfaith organizations; and has presented her work at the widely-attended, international Parliament of the World’s Religions. Learn more at: www.tealarborstories.com.

My dad always had a strong sense of location, no matter where he traveled. He would step outside of his hotel and he would know—based on the time, the location of the sun, and the hemisphere he was in—exactly where the cardinal directions were. However, my parents have now taken to using a vehicular GPS when they travel to their vacation rentals in the U.S. northeast, as my dad has gotten lost one too many times.

I used to pride myself on not using a vehicular GPS (I absolutely abhor it), but referring instead to paper maps. There’s something about their tactile feel, and about seeing the bigger picture rather than the small road network you see on the GPS screen. But then I realized I have a GPS in my watch, and I use it when I go cycling or walking to tell me how far I’ve gone and when I have to turn around. I haven’t associated any landmarks with the various distances I travel on foot—I just follow what the GPS tells me. I know it’s accurate because it provides numbers similar to those of my cycle computer (which is based on the wheel circumference and number of rotations), but it’s disappointing to me that I’ve abdicated my understanding of and immersion in my local wilderness by relying on a GPS watch.

In Wayfinding, M.R. O’Connor covers every detail of navigation you might ever want to know. She deftly weaves together interviews with scientists and researchers, her own reading of the academic literature, and her visits to three different Native groups who navigate landscapes largely devoid of unique landmarks.

The term “wayfinding” comes from American psychologist James Gibson, who used it to describe spatial navigation. “There [is] no separation between mind and environment, between perceiving and knowing; wayfinding [is] a way that we directly perceive and involves the real-time coupling of perception and movement,” writes O’Connor. She sees wayfinding as a way to change our focus from constantly looking down at our devices, to looking around us and building connections and community with the places and people we see.

O’Connor covers a lot of academic ground in this book, largely because wayfinding is studied by such a wide range of disciplines. These include psychiatry and psychology (how groups perceive direction—for example, one group has no up/down or left/right—it’s all based on the cardinal directions); astronomy (navigating by the stars); neuroscience (what parts of the brain are used in wayfinding); ethnography and anthropology (how is wayfinding passed on through generations and what tools do they use); geography (wayfinding as creating a sense of place); and more.

When traveling in these landmark-free landscapes with experienced wayfinders, it can be easy to believe they have some special skill that no one else can have. But wayfinding is taught and can be learned at any stage of life.
One particularly interesting aspect of wayfinding in Western culture is that boys are often socialized to be good wayfinders. They are given opportunities to develop their perception of three-dimensional figures in space, which is critical for navigating, whereas girls are usually not given those opportunities. Researchers have found that in cultures where both girls and boys are taught wayfinding skills, they do equally well. It’s nurture rather than nature that lies behind wayfinding abilities.

In studying the Inuit, Aborigines, and Marshall Island peoples, O’Connor learns that all children, regardless of gender, are taught from an early age how to navigate these landmark-free landscapes. However, each of these indigenous groups have been affected by the loss of traditional knowledge due to residential schools and other forms of persecution to which they were subjected by European colonizers. There is a lost generation that was never taught these skills, so the remaining elders are turning to the current generation to try and teach them how to navigate in somewhat featureless landscapes.

The Inuit navigate partially by sastrugi (snow drifts that collect behind small pebbles and irregularities in the landscape), which help them identify the dominant wind direction. This gives them a reference direction against which they can travel. They also have names for almost every bay or camp or lake that help them navigate to those places on the landscape.

The Aborigines take their children out on Dreaming tracks, singing the song cycles of their landscape that are based on the location of specific rocks, trees, and the stars. This is also called “totemic geography,” which gives “a deeper significance to ordinary geography and makes it more memorable.” They have even created paintings of “The Dreaming” which are considered on par with Western maps. This is similar to western Apache culture in the United States, in which people pass on stories that describe journeys because they give the names of all the landmarks along the way. “A researcher heard an [Apache] cowboy reciting a list of place-names to himself for nearly 10 minutes straight... he [said] he ‘talked names’ all the time, that it allows him to ‘ride that way in my mind.’”

The Marshall Island natives train their children using sticks to show the direction of the prevailing ocean current and then have them lie in the bottom of a canoe offshore to sense where the waves are coming from and to identify where land might be located based on various patterns in the wave signal. For example, O’Connor talks to a Hawai’ian canoer who is in her late thirties and has just passed the final test in her navigation training. Now she can pilot canoes on longer voyages from Hawai’i to the Marshall Islands. This training and traveling have also become a way to “wrench [the natives’ identity] away from missionaries, colonial governments, and tourism economies—even scientists and anthropologists.”

It’s not just native groups that are trying to revive the practice of wayfinding. John Huth, an experimental particle physicist at Harvard University, teaches a course in traditional navigation to university students, trying to get them to inhabit space and time more concretely. In many cases, they don’t know the cardinal directions, or the prevailing wind direction. These are basic pieces of knowledge that form the building blocks of wayfinding, and students are completely unaware of them. Western societies
don’t generally teach children wayfinding. Kids just roam around and figure things out for themselves. And as kids are forced to stay closer and closer to home to play (largely due to “stranger danger” worries), they’re using their navigation skills less and less. As they use devices such as cell phones, their gaze is trained downward to those devices instead of looking up and taking in the environment around them. Indeed, O’Connor quotes Tim Ingold as having said, “we are not self-contained individuals confronting a world out there, but developing organisms in an environment, enmeshed in tangled relationships. As we move through space, our knowledge undergoes continuous formulation. Wayfinding isn’t knowing before we go, but, as he put it, ‘knowing as we go.’”

Wayfinding isn’t just a way to traverse a landscape—it’s also a matter of safety. The Inuit mention the danger in not being able to wayfind and thus using a GPS to find the straightest route from A to B. This often sends hunters through areas that they would otherwise avoid because they’re dangerous—like the floe edge. Hunters have had to be rescued because they used their GPS instead of the old routes, which bypassed potential hazards. There is also the fact that they use snowmobiles instead of sled dogs, as many of the elders note that sled dogs are able to sense how to get home, and in a blizzard many Inuit have relied on the direction of their dogs. But it’s becoming too expensive to own a dog team, so snowmobiles are used much more often. The other factor affecting Inuit activities is climate change. While in the past they could predict the weather fairly accurately, the weather has become so unpredictable that they’re not sure what to expect from day to day, as the environmental clues keep changing.

Researchers have found that the brain is highly plastic when it comes to developing grey cells in the hippocampus, which is responsible for recording the what, where, and when of our long-term memory. Memory is required at all times while wayfinding, which is one of the functions of the hippocampus—to store memories. There is some indication that kids who are more physically active and fit have a larger hippocampus than those who don’t, and that they do better at memory tests. Some also suggest that navigation is a story problem, as “the human mind is built to encode topographical information in the form of stories.” As Howard Eichenbaum notes, “The hippocampal system is encoding events as a relational mapping of objects and actions within spatial contexts, representing routes as episodes defined by sequences of places traversed.” And O’Connor adds, “Maybe the metaphor at the heart of navigation is not following a map but listening and intuiting the progress of a piece of music” (i.e., the songlines of the Australian Aborigines).

One of the negative impacts of not wayfinding on a regular basis is that the hippocampus gets smaller. Researchers have discovered that if you live in the same house and follow the same path to work each day and eat in the same place and follow the same path back home, you aren’t exercising your hippocampus and will lose grey matter sooner. They recommend varying your route to and from work, where you have your lunch, and what you do at different times of day. They also recommend getting lost on purpose—where you have a vague sense of where you are but need to work out how to get somewhere familiar without using your cellphone GPS. This type of navigation works on the plastic cells of the hippocampus and helps us build new connections in our brains.
This is a great idea, but what if you work at home? There are no different routes to and from your office in the basement. Yes, you must go out and get groceries and other things, but there’s only one route to the grocery store and another route to the pharmacy. Because I don’t live in a walkable neighbourhood, there aren’t a lot of options for me to take different routes to places I visit regularly. What about people who have been rooted in place for decades, or who are housebound? What does this mean for our hippocampus and the plasticity of our brains, and our potential to get Alzheimer’s—which is associated with a small hippocampus?

The book doesn’t limit itself to human navigation, and includes some neat tidbits, like how the word “beeline” came from the fact that bees take a circuitous route to find pollen but head back to the hive on the shortest route possible: a beeline. There’s also the mystery of how so many migrating animals rely on Earth’s magnetic field for their perambulations of the globe. These days, we also use navigational terminology to describe the virtual space we inhabit on the worldwide web. We use terms like “search for content, go forward and back between sites that we visit.” O’Connor notes that, “It wasn’t until the twentieth century that navigational technology released us from needing to pay any attention at all.” On the horizon now are driverless cars. These won’t require our attention, and we’ll get into certain transportation ruts—our automatic vehicle will always choose the same, fastest way to get to work every day. As O’Connor puts it, “Where we go will increasingly be confined by the technology we use.” I’ve seen this in action at a dog park I used to frequent in Lethbridge, southern Alberta. The original park had dirt trails, and people wandered all over it with their dogs. Then the city put in an asphalt trail, and the number of people on the side trails declined significantly as everyone stayed on the paved path. The paved area got a lot busier, while the non-paved trails got a lot quieter.

It’s to O’Connor’s credit that she provides such specific reasons for connecting with the Native groups she chose. Many times it seems as though researchers visit specific groups just because they happen to be “in the area.” I was also impressed in that she is the first environment writer I’ve read who brings her child with her on her trip to the Marshall Islands—and then proceeds to include them in the narrative. This is an excellent example of how we can integrate life and work, and show others that it’s possible.

This is a book to read slowly and stop regularly to think about. It is dense with scientific information—all well written, but a lot to absorb. There is also the braiding of the stories of the Native groups with the science of navigation and wayfinding, which is fascinating, but again, takes some time to follow and understand. One thing I was surprised not to read more about was orienteers, who do timed races while traveling across country. They use a topographic map to find control points, where they collect a marker before heading on to the next point.

Toward the end of the book O’Connor leaves us with two rich observations that should linger in our minds:

“Navigating becomes a way of knowing, familiarity, and fondness. It is how you can fall in love with a mountain or a forest. Wayfinding is how we accumulate treasure maps of exquisite memories.”

“Maybe wayfinding is an activity that confronts us with the marvelous fact of being in the world, requiring us to look up and take notice, to cognitively and emotionally interact with our surroundings whether we are in the wilderness or a city, even calling us to renew our species’ love affair with freedom, exploration, and place.”

Photo credits: Sarah Boon

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(JONATHAN CAPE, 2019).

Nance Klehm
The Soil Keepers: Interviews with Practitioners on the Ground Beneath Our Feet
(TERRA FLUXUS PUBLISHING, 2019).

Robert Macfarlane
Underland: A Deep Time Journey
(W. W. NORTON & COMPANY, 2019)

Sharon Blackie
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(SEPTEMBER PUBLISHING, 2019).

Barry Lopez
Horizon
(ALFRED A. KNOPF, 2019).

Bill McKibben
Falter: Has the Human Game Begun to Play Itself Out?
(HENRY HOLT, 2019).

The New Farmer’s Almanac 2019, Vol IV: The Greater “We”
(GREENHORNS, 2019).

Mark I. Wallace
When God Was a Bird: Christianity, Animism, and the Re-enchantment of the World
(FORDHAM UNIVERSITY PRESS, 2019).
I walk the line. Well, I *used* to walk the line, looking for desert belly flowers, rare cacti, kangaroo rat tracks, and cryptic horny toads. I walked one side of the fence while Mexican friends stationed on the other side of the international boundary did their part, six feet to the south of me.

They were in Sonora, Mexico, and I was in Arizona, the arid-most reach of the United States, but all of us were rooted in the same Sonoran Desert, in love with its drop-dead gorgeous ancient cactus forests.

We were like brothers and sisters hitched at the hip, working collaboratively on conservation projects that spanned a dotted line on a map that has never really divided our hopes, hearts, or heritage.

Together, we saw how the roots of ironwood trees crawled below our feet and beneath a barbed-wire fence. We joked about how milkweed vines climbed up one face of the fence and down the other, with no visa or passport in their pockets. We felt the breeze blow in the branches of mesquite trees that arched above us—branches that knew no borders.

The desert wind did not care much for artificial constructs. It blew them away whenever it wished to do so. As did the episodic flashfloods, the raging bulls, and wear and tear brought on by the searing sun.

But nowadays, the very same stretches of the desert where my friends and I once walked—side by side along an artificial divide—are sites awash in well drilling, cement mixing, bulldozing, cactus piling, and barrier building.

The vision we once had—one that reached across that great divide, one that expressed an unflinching interest in and affection for those on the “other” side—is being badly shattered. It is being shattered by millions of tons of solid cement, sturdy steel, and a sniveling disease called xenophobia.

While you might be prone to dismiss my interest in the bygone days of border life as some misplaced romanticism and nostalgia, I would argue that it is something other than that. I spend less time reflecting on how I came to know the Mexican *frontera* forty-five years ago, and more on how one particular friend of mine knew it ninety years ago.

That is because that elderly indigenous friend and mentor was the very person who strung the first strands of barbed wire from post to post along a hundred mile stretch of the Arizona–Sonora border in the 1930s. He belonged to three nations—Yankee, Mexican, and O’odham Indian—if he actually belonged to any of them. He really belonged to the desert itself, what he called the *tohono*, that luminous land of little rain and many hidden gifts.

That gracious man was called *Pete Blaine* on the northern side of the then-imaginary border-line, and *Pedro Garcia* on the southern side. As he would comically confide in us, “You can call me Blaine, or call me Garcia... I’m the same ol’ Pap’go Injun no matter what side of the line you put me on.”

Some historians say he was the first forest and game warden of Native American heritage on either side of the border. Others claim he was the first of his kin to go to Washington, DC, to fight for the rights of his tribe in seeking formal recognition and self-determination. While Internet sites today say that he was the second formally recognized tribal governor of the Tohono O’odham—the
Desert People—what Pete himself told me was that he served as the first one ever, democratically elected by his own friends and neighbors.

I found it odd that he seldom wanted to talk about his political career on the days that I would visit him. I would call ahead and then knock on the door in his small apartment across from the railroad tracks in downtown Tucson. We would sit in chairs out on the balcony of the run-down seniors’ complex, the place that Pete called home late in his life. What he chose to recount were his adventures in the desert that both of us loved.

Without any prompting, he opened up about his participation in a landmark event that began to change the desert itself during the Great Depression. He was sent out to construct a rather flimsy fence to run between some forty metal obelisks along a seventy-five to one-hundred-mile stretch of the border between two international ports of entry.

The obelisks had been placed out in the desert between 1848 and 1853 to remind the O’odham farmers and ranchers out there which foreign country they were entering. At each obelisk, erected every two to three miles along that stretch, government workers would bring him rolls of barbed wire fencing, metal fence posts, mesquite fence posts, and hardware that he would then move with his one horse and two pack mules. Once the fence posts were aligned between the obelisks and the wire loosely strung between them, he would ratchet up the fence with a handy gadget known as a “come-along.”

Eventually there was a physical barrier—more like a modest filter—running all the way between the border crossings at the place then called Ambos Nogales and Sonoita. There had already been a short segment of fence put up in 1915 to help people distinguish the twin settlements of Nogales (Sonora) and Nogales (Arizona) and keep out American gun smugglers who were making loads of money off supplying rifles to troops on both sides of the Mexican revolution. Ironically, the governor of Sonora, Jose Maytorena, ordered its eleven strands of wire erected, but it was taken down four months later after outcries from residents and officials on both sides of the line.

Near the westernmost reaches of Pete Blaine’s fence were the ancient oases of Sonoyta and Quitobaquito, the former mostly on the Mexican side, the latter cut in half by the line. Once the fence was up, a Lebanese immigrant named Kalil put up a trading post on the U.S. side and named it after himself. Kalilville is now called Lukeville, and it is the gateway to Organ Pipe Cactus National Monument, a wilderness park that I lived in when I walked the line.

Now, as I write, there are sections of thirty-foot-high wall going up on both sides of the Lukeville Port of Entry, one in a breathtakingly beautiful ancient forest of ironwood trees and cacti that I had a chance to revisit just a couple weeks ago. Even some of the Border Patrol now working in that sector claim that no wall should ever be built there, given that illegal crossings are few and easily detectable. Surely, undocumented border crossers, few as they are, can be managed by other means.

But at the time when Pete worked there as a forest guardian, the border was wide open, and he was still a young man. He found himself called into action to build a four-foot-high fence—not to keep people from crossing the line, but to discourage free-ranging cattle originating further south in the Altar Valley from spreading hoof-and-mouth disease northward into herds born and branded in the United States. Most of his other concerns were focused on curbing illegal woodcutting by workers from the copper mine in Ajo, thirty-five miles to the north, and stopping hunters from poaching desert bighorn sheep or pronghorn antelope.

At that time, his own O’odham people (also called Papago) came and went across the line at will, since roughly half of them lived south of the Gadsden Purchase demarcation line drawn in 1853, and the other half lived north.

Neither the Tohono O’odham nor their seasonally mobile cousins the Hia C-ed O’odham were yet to be recognized as distinctive and sovereign
indigenous nations by the U.S. government or by the Mexican government.

But in that same decade, Pete was among those who helped them shape a reservation the size of Connecticut on the northern side of the international boundary. Today, about nine out of ten Tohono O’odham live north of the border on that reservation, while another 2,300 O’odham remain south of the border, but retain rights to use tribal services north of the line.

And so, the first division and enclosure of those lands in the heart of the Sonoran Desert began as a way of restricting the movements of livestock, not humans. The O’odham and their neighbors still moved freely across the line, dropping a line of barbed wire here or there, then picking it up and attaching it to a post again, on their way to celebrate Catholic saints’ days or hold Indian ceremonies on one or the other side of the flimsy fence.

Those movements for religious purposes are documented in written records as far back as 1698 at Quitobaquito Springs—a small, oasis-like village later cut in half by the theoretical international boundary. I witnessed both native and Catholic religious rites and spiritual expressions at Quitobaquito that continued to use the sacred waters and ceremonial plants there well into the 1980s and 1990s.

To my knowledge, no O’odham person has ever ceded his or her constitutionally guaranteed right to practice his or her place-based religious expressions there, and during my time living in Organ Pipe, the National Park Service superintendent explicitly sanctioned continuing O’odham spiritual uses there. The current superintendent welcomes O’odham traditional practices as well, including the harvesting of cactus fruit used for making a sacramental wine necessary for rain-bringing ceremonies. The rights of the O’odham to harvest fruits off the giant, columnar cacti in the Monument were written into its enabling legislation by Congress in 1937.

In the near future, any attempt to exercise those cultural and spiritual expressions at Quitobaquito—within portions of their former village now found within a hundred yards on both sides of the border—will be obstructed by a towering wall of steel slats, and twenty-four-hour-a-day lighting seven days a week. The local people I know who have visited that area since wall construction ensued were distraught by the dust and the noise, and by the sight of sacred saguaro cactus being toppled and piled up by construction crews.

**Grief comes from the shock that anyone would dare drill well after well—each one just five miles apart from the others—merely for mixing concrete with water that is both precious and sacred.**

One O’odham woman stood over the mangled carcasses of three giant saguaros and moaned, “They are killing our ancestors... for what? To put up metal where these lives once stood?”

Nearly every other O’odham individual I have spoken with over the last few months expresses traumatic stress over knowing that their ancestral home of the last eight thousand years has been cut in half by abusive border policy made incarnate in a brazen barrier.

They are suffering the grief that comes with witnessing their sacred lands and waters sliced up by a large razor blade of steel slats towering twenty-five feet over them in terrain where you can otherwise look out over dozens of miles of desert and sky in every direction.

Grief comes from the shock that anyone would dare drill well after well—each one just five miles apart from the others—merely for mixing concrete with water that is both precious and sacred. The pumping is destabilizing an artesian aquifer that is not likely to be naturally replenished for centuries, and certainly not during our own lifetimes.

Grief comes from the sickening feeling of not knowing whether their relatives in Mexico will be allowed to cross the line in time to participate in seasonal ceremonies, and not knowing whether
they themselves can travel, unrestricted, to attend the most sacred ceremony of their people held thirty-five miles south of the line.

Grief comes from the disrupted access to sacred, ceremonial, and medicinal plants used and honored by their people since time immemorial.

Far worse, there is the fear of breaking the ties with all their relations, with the living and the deceased, with the human and other-than-human worlds. As I sometimes chant or wail to myself as I walk the line,

Those bonds of kinship have made them who they are:—a people like no other—but in other ways, one like all others—for all of us suffer from the ultimate consequences of the severing of the ties that bind us to our Beloved Mother, this battered, blasted, and bull-dozed planet that we still have the guts and guile to call our home.

Gary Paul Nabhan is an Ecumenical Franciscan Brother, a desert ecologist and conservation biologist who lives within 12 miles of the U.S./Mexico border line. See his other border essays at www.garynabhan.com, and on the soon to be launched website, Halting and Healing the Border Disorder. His most recent book, *Mesquite: An Arboreal Love Affair* is recipient of the Southwest Book Award.
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