



Biodiversity for a Livable Climate

Restoring Ecosystems to Reverse Global Warming

April 2019 Newsletter

Greetings!

**Happy Day after Earth Day . . .
Onto Earth Year!** □

April is alive with the sounds and images of creative rebellion, and in all kinds of forms! These stories are moving, empowering, and inspiring. They tell of the death of ecosystems at the hands of humans, and the unwavering determination of different individuals and organizations to stand up for what they believe in when it comes to saving our biodiversity and our planet.



Tanya Kalmanovitch, Canadian violist, ethnomusicologist, and author

[Tanya Kalmanovitch](#)'s performance piece, the Tar Sands Songbook, captivated the audience at Harvard Epworth Church in Cambridge on Saturday evening, April 13, 2019. Assisted by pianist Ted Reichman, Kalmanovitch is clearly a powerful performer: she moves easily from song to narrative to solo viola, seamlessly weaving together a chorus of voices telling the story of growing up in Fort McMurray, ground zero for Canada's oil and fracking industry.

Biodiversity for a Livable Climate and the [Better Future Project](#) co-hosted the concert, an instance of climate organizations from both an emissions and an eco-restoration perspective addressing climate change collaboratively. Both are urgently needed at this critical time.

Then, on April 17, [Extinction Rebellion](#) took to the streets in Boston outside the Old State House, and later in the lobby of the Boston Globe, in peaceful protest asking the newspaper to commit to far more thorough coverage of the climate emergency. The protest began with lively song and dance (check it out [here!](#)) showcasing the non-threatening, creative rebellion that the group has adopted to emphasize the ecological and climate emergency.

We're continually inspired and encouraged by the creative forms of expression being used to call attention to and respond to climate change and biodiversity loss all over the world.

□

Let your creativity flow ~



Extinction Rebellion standing in the lobby of the Boston Globe on April 17, 2019.
Photo credit: Adam Sacks

Manjulika Das

Manjulika Das, Project Manager

□ Read on to Discover . . .

- *The Blessing of Agro-ecology in Zimbabwe
- *Eco-restoration in Spain
- *Nourishment by Fred Provenza - A Book Review
- *Bio4Climate Volunteer - Fred Jennings
- *NOAA's Project on Hot Days in the City

The Blessing of Agro-ecology as a Response to Cyclone Idai - Evidence from Zimbabwe

In an emotional email, John Wilson, a Zimbabwean free range facilitator and activist in East and Southern Africa who works with community-based organizations, and regional and continental networks to facilitate a stronger food movement in Africa. He underscores the importance of using agro-ecology to mitigate cyclone damage, using water from cyclones to replenish soil for food production, and restoring ecological vibrancy to the land.



Water harvesting holding up under heavy rainfall in PORET



Zimbabwean farmer VaChieza manages water on his farm

In March, Cyclone Idai brought flooding and devastation to Mozambique, Zimbabwe, Malawi, and Madagascar. After the cyclone, people compared the damage that the Chimanimani district in Zimbabwe experienced to that in surrounding regions of Zimbabwe and Mozambique - and made a startling discovery. Mozambique in general has faced far more significant damage from flooding, with heavy property loss and higher death tolls. In Zimbabwe, largely forested areas in the Chimanimani district experienced the same amounts of rainfall as the highly impacted areas, but remained intact with minimal to no damage.

VaChieza (pictured above, right) and his wife are farmers in this region who have learned how to manage the water on their farm. Their technique for harvesting water is to start from the top by building a ditch on contour to catch water from over-grazed areas above, and connect it to a series of smaller, interlinked ditches below. The system has proved to be effective for their farm.

In another example of effective water harvesting and management PORET (Participatory Organic Research Extension and Training) has an intricate structure for harvesting water: ponds/small dams and inter-linked [spillways](#) (control the water flow)/[dead-level contours](#) (harness water). PORET's structure was able to withstand the significant rain and run-off that came from above (pictured above, left).

As Wilson puts it "Agroecology is about developing integrated water management plans, plans that understand the linkages between Agriculture and Ecology (Agroecology)." He argues that recognizing the way that water flows on land and infiltrates underground is key to minimizing storm impact. Unlike the situation in industrial agriculture, this understanding of nature is at the heart of agro-ecology. Chimanimani is the only district in Zimbabwe where various stakeholders have worked together to develop a climate change strategy. It provides a striking example of the benefits of implementing agro-ecology in the parts of Africa that are currently vulnerable to major cyclones. [Read John Wilson's full account here.](#)

The Decade of Eco-restoration - Bringing Back Biodiversity in the Deserts of Spain



An aerial view of the Quaternary Geopark in Granada. Paco Puentes

The United Nation's declaration on the Decade of Restoration has been coming into full force with the aim of mobilizing political and financial support to restore billions of hectares of land around the world. Spurred by growers and entrepreneurs who are developing regenerative agriculture solutions, an eco-business movement called Alvelal is attempting to restore a huge degraded tract of land shared by Almeria, Granada and Murcia in Spain. This could impact millions of people by keeping more water in the soil and increasing vegetation on the land. These changes could have significant impacts on natural cycles and thus influence the local climate. From a socio-economic point of view, the project "aims to empower rural people so they can take charge of their own destinies in a region that is socially and economically challenged."

The project is being backed by [Commonland](#), a Dutch NGO whose environmental model had done very well in South Africa and Australia, and were now looking to apply it in Spain. The plateau of Almeria was selected based on a 2009 UN Report that deforestation was increasing in the region, along with soil erosion and depopulation.

Almonds are commonly grown on the Almeria and Granada plateau as they are profitable, but the deteriorating soil quality will begin to affect almond farms here. Alvelal is focusing on a piece of land the size of Madrid with about 50,000 hectares of regeneratively grown almond trees. The organization hopes to double its amount of land under regenerative agriculture, currently 8000 hectares. Practicing this kind of farming with almonds "increases the ecological value of ecosystem services between 17% and 28% after just one year" (see link below).



Fields of Almond trees in the Granada Province. P.P

Through this project, Alvelal hopes to tackle the loss of biodiversity around the world and the related implications for food safety - based on data that the UN Food and Agriculture Organization (FAO) has gathered.

[Read more about the project and regenerative success so far here.](#)

Why Animals Have Better Diets than We Do - Fred Provenza's Lessons on Nutrition

Fred Provenza is a scientist who speaks the language of poetry, and a poet who speaks the language of science. In his latest book, *Nourishment: What Animals Can Teach Us About Rediscovering Our Nutritional Wisdom*, he regales us with tales of the extraordinary genius of the natural world. In a lifetime of work both in formal research and as a beloved professor, he continues to regard Nature with a sense of amazement, wonder, respect and deep love. In *Nourishment* he shares with us his remarkable explorations, observations and insights.

Fred spent much of his career studying the social relationships among ruminants, whose rich cultures are often invisible to self-centered “civilized” humans. He's focused on how animals in the wild make excellent dietary choices.

Even rats, who have been subjected to experimental conditions of surgery, incarceration and a life unnatural in the extreme, make sensible choices when given a selection of foods with essential nutrients; those choices result in a balanced and healthful diet. Rats rendered diabetic in the lab show signs and symptoms of human diabetic patients. As he puts it,

Diabetic rats allowed a choice consume more protein and less carbohydrate than nondiabetic rats. As a result they lose their symptoms of diabetes. Blood sugar levels return to normal, they gain weight, they eat less food, and they drink normal amounts of water. The same happens when diabetic humans increase their intake of protein and reduce carbohydrates in their diet. (p 20)

Animals' bodies know what to do, and unlike us industrialized consumers, they listen.

Calves learn what to eat from their mothers. If they are later removed to another location, far from home, as often happens in the U.S., they will have to re-learn what to eat, and also learn what toxic plants or combinations of plants to avoid. To recognize toxicity, an animal trying a new food must have a fairly quick adverse reaction such as nausea. But some plants cause delayed toxic reactions, and once symptoms become apparent it may be too late. Cows have social relationships and cultures, the young learn from their elders, and cultures teach survival.

Human foraging in supermarkets is not so different from animals foraging in the wild. But in supermarkets natural flavor, perverted by fake tastes and chemical misdirection, fails to serve as an adequate warning to our deluded palates.

Provenza writes,

This brings us . . . to one of the phenomena that underlies nutritional wisdom: The presence of phytochemicals [compounds found in plants] in whole foods limits how much of any one food we can eat. That enhances health through nutrition by exposing the body to a wide array of phytochemicals, thus enabling cells to pick and choose from a wide variety of compounds. With energy-dense processed foods, the appetite-stimulating effects of variety aren't offset by the appetite-moderating effects of phytochemicals. Thus a person can easily devour sixty grams or more of sugar in a processed food. With unlimited access to vast arrays of foods . . . people never satiate. . . . Like other feedback traps, people are unlikely to relate the slowly evolving symptoms of diabetes with their eating choices. (pp 200-202)

Fred Provenza, the scientist, shows us how we can re-educate ourselves, healing our health, the health of the habitats that support us, and the planet under assault by our disconnect from nature all around us. And, years after he survived a serious encounter



with cancer, he also speaks to us as a mystical poet in this uncertain era:

When I was a child, I dreaded death. I was afraid I'd die before I'd done whatever it was I'd come to do on Earth, perhaps to experience lessons I was supposed to learn. I didn't realize as a youth I had nothing to fear. Now, well into my seventh decade, I've had an "unforeseen" adventure on Earth. I'm no longer afraid of "death." I'm prepared to transform into whatever other dimensions of universal at-one-ness await me when the time comes. I'm ready for the scavengers and decomposers to transform this carcass, which I've had the opportunity to inhabit, into soil, leaves of bluebunch wheatgrass, pasque flowers, mountain mahogany, antelope, coyote, raven and eagle. But I will miss being human on Earth, with all the delights and dilemmas, sorrows and pains, qualms and uncertainties, wonders and deep mysteries the journey entails. (pp 324-325).

Staff Notes - Introducing . . .

. . . Fred Jennings - Economist and Fisherman

Frederic Jennings is a Ph.D Economist from Stanford University and a B.A. in Economics from Harvard University. He has been an avid fly fisherman for many years, a passion that he says was "in my blood" from being passed down in his family for three generations. In speaking about the intimate relationship he developed with nature from a young age, Fred speaks fondly of his memories in the Santa Cruz Mountains before graduate school. He lived in a small cabin for two years with no electricity, supplied only with a kerosene lamp, a wood stove, a spring-fed hose outside, and "a big pile of books reading anything but economics".



Fred started work on his dissertation about the British Canal System while he was a lecturer at Tufts University. "I picked the British Canal because I wanted to understand networks and the problem of inter-dependence, which is a problem that has been religiously avoided in Economics. The transportation network context was a way of addressing the inter-dependence of network issues in a simpler framework that might open up to something insightful. And indeed it did." Fred's ideas henceforth sought to effectively challenge current economic models. He elaborates on this in a number of papers he has written that can be found [here](#) and [here](#).

Fred has worked out this analytical framework over the last forty years. In November 2016, he attended Bio4Climate's Restoring Oceans, Restoring Climate conference, and has been an active member of the Bio4Climate team ever since.

And . . .

Here's another excerpt from our [Compendium of Scientific and Practical Findings Supporting Eco-Restoration to Address Global Warming](#). The article below is from [our latest issue](#), January 2019, Vol. 2 No. 2 (pp. 32-33):

Hot Days in the City? It's all about location, NOAA 2018

In a project funded by National Oceanic and Atmospheric Association (NOAA), about two dozen citizen scientists measured temperatures in Baltimore and Washington DC on two of the hottest days of 2018. By measuring temperatures second by second with thermal sensors while driving prescribed routes through each city, the data collectors revealed a 17-degree temperature gap between the coolest and hottest parts of DC on the same day. The difference? Trees. The well-wooded areas of the National Arboretum and Rock Creek Park were the coolest parts of the city. The results were similar in Baltimore, where the hottest places were neighborhoods covered in concrete and asphalt with little vegetation. The temperature in these hotspots reached 103 degrees, compared to areas with lots of big trees and parks, which were 16 degrees cooler on the same day.

“Major roadways and dense urban pockets are some of the warmest landscapes in both cities”, according to Jeremy Hoffman of the Science Museum of Virginia, one of the lead researchers on the study. He continued, “These are areas with little or no vegetation, more asphalt and concrete buildings, which can amplify a heat wave” [NOAA 2018]. Researchers used the data to create heat maps of both cities, which can pinpoint the neighborhoods most vulnerable to dangerous heat waves, and to help city officials identify cooling and resiliency strategies: bolster the quantity and quality of green space, plant new trees and protect existing trees.

[Compendium downloads](#) are free!

Last but not least . . .

You're concerned about the current state of the Earth, and we are working for you, our young people, and the diverse web of life we all rely on.

Not to put too fine a point on it, we just want to say that we're a small non-profit doing **BIG** things.

Your support and involvement are very important! Please be sure to . . .



. . . and a monthly donation is **especially** appreciated . . .

Many thanks!

See what's happening on our social sites:



Compendium of Scientific and Practical Findings Supporting Eco-Restoration to Address Global Warming

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