Biodiversity for a Livable Climate

Restoring Ecosystems to Reverse Global Warming

May 2019 Newsletter

Greetings!

A United Nations Report that came out earlier this month laid out the grim reality for biodiversity loss around the world, and linked it closely to the fate of human well-being as a primary driver of climate change.

It is not too late to make a difference.

"*Through 'transformative change', nature can still be conserved, restored and used sustainably – this is also key to meeting most other global goals. By transformative change, we mean a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values.*"

These are the words of Sir Robert Watson, Chair of the Intergovernmental Science-Policy Panel on Biodiversity and Ecosystem Services (IPBES). The IPBES that came out with the above-mentioned report **emphasized the need for indigenous and local knowledge in addressing climate change.**

Melting in action - Svínafellsjökull glacier, Iceland
Photo by Manjulika Das

As a think-tank, Biodiversity for a Livable Climate has been inspired to advocate for nature-based solutions practiced all over the world, many of which stem from indigenous knowledge. From agro-forestry, holistic planned grazing, permaculture, and reforestation to wetland restoration and innovative water cycling management...**the possibilities for cooling and restoring the biosphere are endless!** The combination of small-scale eco-restoration efforts can amount to making a big difference in revitalizing land, increasing carbon sequestration, water infiltration, and cooling.

These conversations are now gaining traction as we move into the Decade of Ecosystem Restoration. Stay tuned for more great stories as we head into the coming months, and find out what you can do to be a part of the eco-restoration efforts.

For a Future that Matters,

Manjulika Das, Project Manager

 Read on to Discover . . .

*A Global Deal for Nature
*Conservation Agriculture in the U.K.
*Christopher Haines on the Heat Planet
*Geotherapy

The Paris Agreement won't work without saving Biodiversity

Reef-scale coral bleaching in the Haw aiian Islands, 2016. Greg Asner, CC BY-ND

The "Global Deal for Nature" led by conservation biologist Eric Dinerstein lays out a strategic plan to curb the sixth mass extinction that is a result of the human disruption and destruction of ecosystems. Greg Anser, who is involved with the study, says that "biodiversity loss and climate change must be addressed as one interconnected problem with linked solutions."

For example, forests can survive a range of conditions and disease outbreaks because "they are diverse portfolios of biological responses, self-managed by and among co-existing species." As a system, they are not only immune to more catastrophic conditions, but can also store carbon from the atmosphere much more effectively.

Anser elaborates on this by describing the case of tree plantations, which are not forest ecosystems. "They are crops of trees that store far less carbon than natural forests, and require much more upkeep. Plantations are also ghost towns compared to the complex biodiversity found in natural forests."

Ecosystems depend on one another. Not only do coral reefs serve as biodiversity hotspots and carbon sinks, they are also protectors during storm surges, and of the inland mangroves and coastal grasslands that are major storage units for carbon and home to many different species. Dismantling the coral reef ecosystem endangers these other ecosystems as well.

The Global Deal for Nature will serve as a guide to governments by specifying the amounts, places, and types of protection that would be needed to safeguard biodiversity. While the Paris Agreement is in place to cut emissions worldwide, it does not account for

the diversity of life on earth. As Anser puts it:

"In fact, my colleagues and I believe the Paris Agreement cannot be met without simultaneously saving biodiversity. Here's why: The most logical and cost-effective way to curb greenhouse gas emissions and remove gases from the atmosphere is by storing carbon in natural ecosystems.

Forests, grasslands, peatlands, mangroves and a few other types of ecosystems pull the most carbon from the air per acre of land. Protecting and expanding their range is far more scalable and far less expensive than engineering the climate to slow the pace of warming. And there is no time to lose."

Read more about the Global Deal for Nature here.

The Farmer-led Blessed Unrest

The Conservation Agriculture movement has taken off in the U.K. Equivalent to the "regenerative agriculture" movement in the U.S. and led primarily by farmers, it has farmers recognizing the economic - and ecological - benefits of reducing their use of machinery and fertilizers. This kind of farming, which focuses on replenishing soil health and vitality has now taken off around the world.

John Cherry turned to conservation agriculture eight years ago. Photograph: David Levene/The Guardian

Amidst reports from the UN that soils around the world are headed towards exhaustion and depletion, John Cherry a farmer in Stevenage, Hertfordshire talks about the farmers who are fighting back to restore soils round the world. Cherry works on his 2000-acre farm with his brother Paul; they turned to conservation agriculture eight years ago. He notes that the first few years were difficult as the soil adjusted, but that their costs eventually went down as they used less and less of pesticides and machinery. Healthy soils can hold and retain more water. They can also absorb large amounts of greenhouse gases from the atmosphere, thus playing a major role in addressing the climate crisis.
With the return of healthy soils, they saw that insects, wildlife and birds came back; their crops became more resilient to drought, and they experienced fewer floods.

Conservation agriculture maintains that plowing, which is used in conventional agriculture, disrupts the fungal networks that sustain the microbial life in the soil. Planting diverse crop systems along with trees (agro-forestry) increases soil diversity and health, while also increasing the amount of atmospheric carbon that can be absorbed and held in the ground. Read more about the farmer-led movement here.

Heat Planet: A New Approach to Climate with Christopher Haines

A Meetup on Sunday, June 16, 2019
6-9pm, Cambridge MA

We have been told since Charles Keeling's report to Jimmy Carter that excess greenhouse gas emissions cause climate change. A careful analysis of such emissions raises important questions about this hypothesis. While excess greenhouse gases do indeed cause harm, there are other very important causes of climate change that we have not pursued due to our narrow focus on greenhouse emissions.

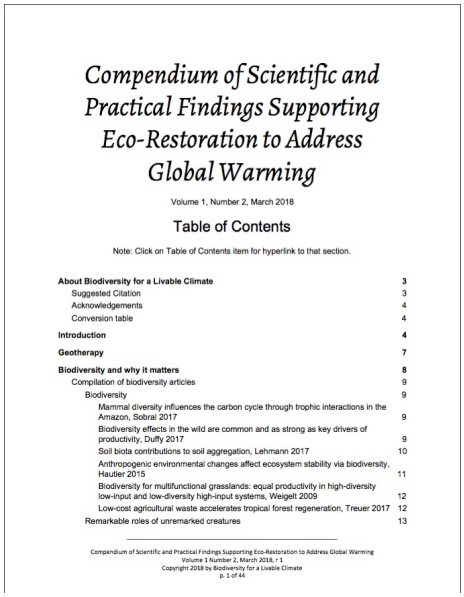
This is good news because most real climate problems are local and can be improved directly and in relatively short time frames. Sea level rise will still be a global issue, but the cooling we can accomplish could slow that process. There are very real opportunities here and reasons for hope.

This meetup will discuss the background of how we got here, reveal the other significant causes of climate change, and discuss what we can do about it.

Find out more about the event and details on our Meetup page.

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 fourth issue, March 2018, Vol. 1 No. 2 (pp 7-8):



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

Volume 1, Number 2, March 2018

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Geotherapy: Innovative Methods of Soil Fertility Restoration, Carbon Sequestration, and Reversing CO2 Increase

The term "geotherapy" was coined by Richard Grantham, an evolutionary biologist and geneticist who, in his later years, turned his attention to the deteriorating state of Earth in the current era, the Anthropocene. He regarded the planet as ill, as a patient, in need of treatment.

The first geotherapy conference was held in 1991 in France, and preceded the first international climate conference in Rio in 1992. It was underfunded and the papers presented could not be published. In the meanwhile the international community focused virtually all of its attention on climate as a greenhouse gas problem. The powerful biological drivers of not only climate but most processes on Earth receded into the background.

This book is an invaluable contribution to redressing serious oversights on the part of mainstream climate science. For example, anthropogenic climate change began long before the industrial revolution, as leading soil scientist Rattan Lal states in his Preface to *Geotherapy*:

"One of the consequences of the drastic anthropogenic perturbation of the biosphere is the depletion of the ecosystem and soil carbon pools. Rather than commencing with the onset of the industrial revolution around 1750, Anthropocene began with the beginning of
settled agriculture 10 to 12 millennia ago. Over this period, more carbon may have been emitted into the atmosphere from deforestation and land use conversion than from fossil fuel combustion until the end of the twentieth century. Thus, recarbonization of the biosphere in general and that of the soil carbon pool in particular is important to the maintenance and enhancements of ecosystem functions and services. [Goreau 2015: xv-xvi]

Geotherapy is an anthology of thirty-four scientific articles that sketch a roadmap to planetary health. Topics covered range from biochar to rock powders to waste nutrient recycling to remediation with plants to carbon farming (farming with soil health a primary concern), and more. The articles are well-illustrated, well-referenced, and accessible to a layperson generally familiar with scientific writing. It's a guidebook with many shovel-ready approaches as well as theoretical explanations. The sense of both urgency and hope in bringing back living systems to the Anthropocene landscape is palpable:

"If soils are not restored, crops will fail even if rains do not; hunger will perpetuate even with emphasis on biotechnology and genetically modified crops; civil strife and political instability will plague the developing world even with sermons on human rights and democratic ideals; and humanity will suffer even with great scientific strides. Political stability and global peace are threatened because of soil degradation, food insecurity, and desperateness. The time to act is now." [Rattan Lal in Goreau 2015: xvi]

Edited by Thomas J. Goreau, Ronal W. Larsen and Joanna Campe
[Goreau 2015]

***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 . . .

Donate

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

Many thanks!

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