



# Biodiversity for a Livable Climate

*Restoring Ecosystems to Reverse Global Warming*

## The Challenge:

Remove carbon from the atmosphere and store it in soils in order to restore ecosystems and reverse global warming.

*We can do this using safe, cost-effective, and proven biological solutions which regenerate the land, foster food and water security, and revive local economies.*

# The Central Climate Issues:

- Atmospheric concentrations of greenhouse gases (GHGs) now far exceed broadly-accepted safe levels.
- Positive feedback loops are now in play, and the pace of climate change is accelerating at an alarming rate.
- Increasingly violent and unpredictable weather already reflects anthropogenic climate change.
- Reducing GHG emissions is politically difficult, has shown few signs of success, and, even if implemented quickly, is insufficient to avert serious damage from climate change.
- Untested “geo-engineering” is fraught with unknown and potentially dangerous consequences.



# The Solution: Putting Life to Work



*Photo: Africa Center for Holistic Management*

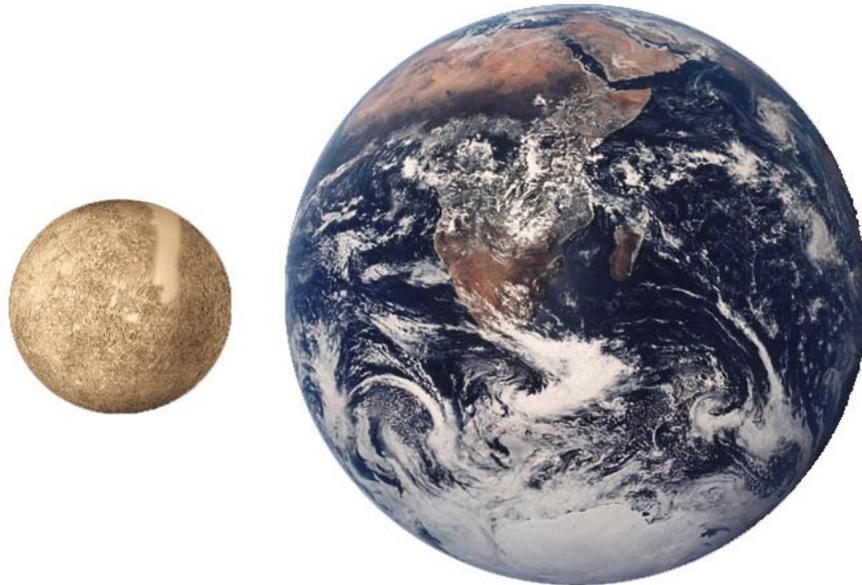
Eco-restoration is a familiar, safe, and highly promising response that is not yet at the heart of the global climate strategy.



# Biology has created the Earth

Over 3.5 billion years biology has formed the planet we live on, from massive limestone cliffs to coral reefs, to the soils that grow food, to the oxygen atmosphere that makes today's world possible. For a force that powerful, restoring a stable climate is well within the realm of the possible.

Without biology, the Earth would be just another bare and lifeless rock in the universe, like Mercury.



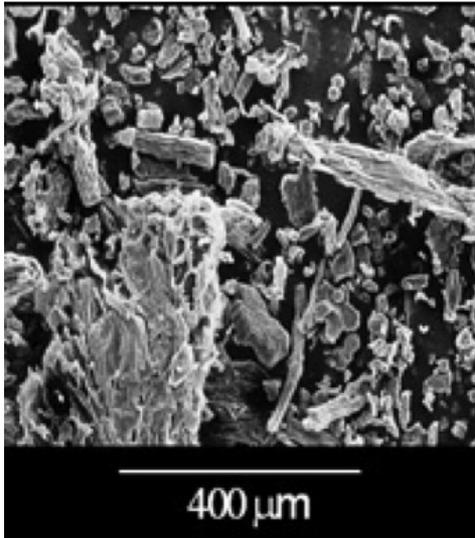


*Photo: The Atlantic*

- Using biological processes may be the *only* way to reduce atmospheric carbon quickly enough to address climate effectively.
- The predominance of the physical sciences in climate studies has led to neglecting the power of biology in the climate equation.



The science illuminating the potential of natural soil-carbon sequestration is scattered across a variety of disciplines.



A coherent, focused, action-oriented climate/soil-carbon discipline is slowly beginning to take shape.



# The Vision: Carbon Farming

## Sequestering carbon in the soil:

- Stabilizes climate and weather patterns
- Restores biodiversity and soil health
- Re-establishes healthy water cycles
- Increases land fertility, food quality, and productivity
- Brings sustainable, self-financing local jobs to millions, especially in developing countries

There are many ways to farm carbon, depending on local conditions.



# Carbon Farming Approaches

A long and growing list of tactics can advance the broad strategy of carbon farming:

- Holistic management of grasslands
- Jungle and forest regeneration
- Permaculture
- Biochar, rock powders, and sea mineral supplementation
- System of rice/crop intensification (SRI/SCI)
- Ocean reef recovery and regeneration of sea grasses



# The Biosphere Can Repair What We Have Broken . . .



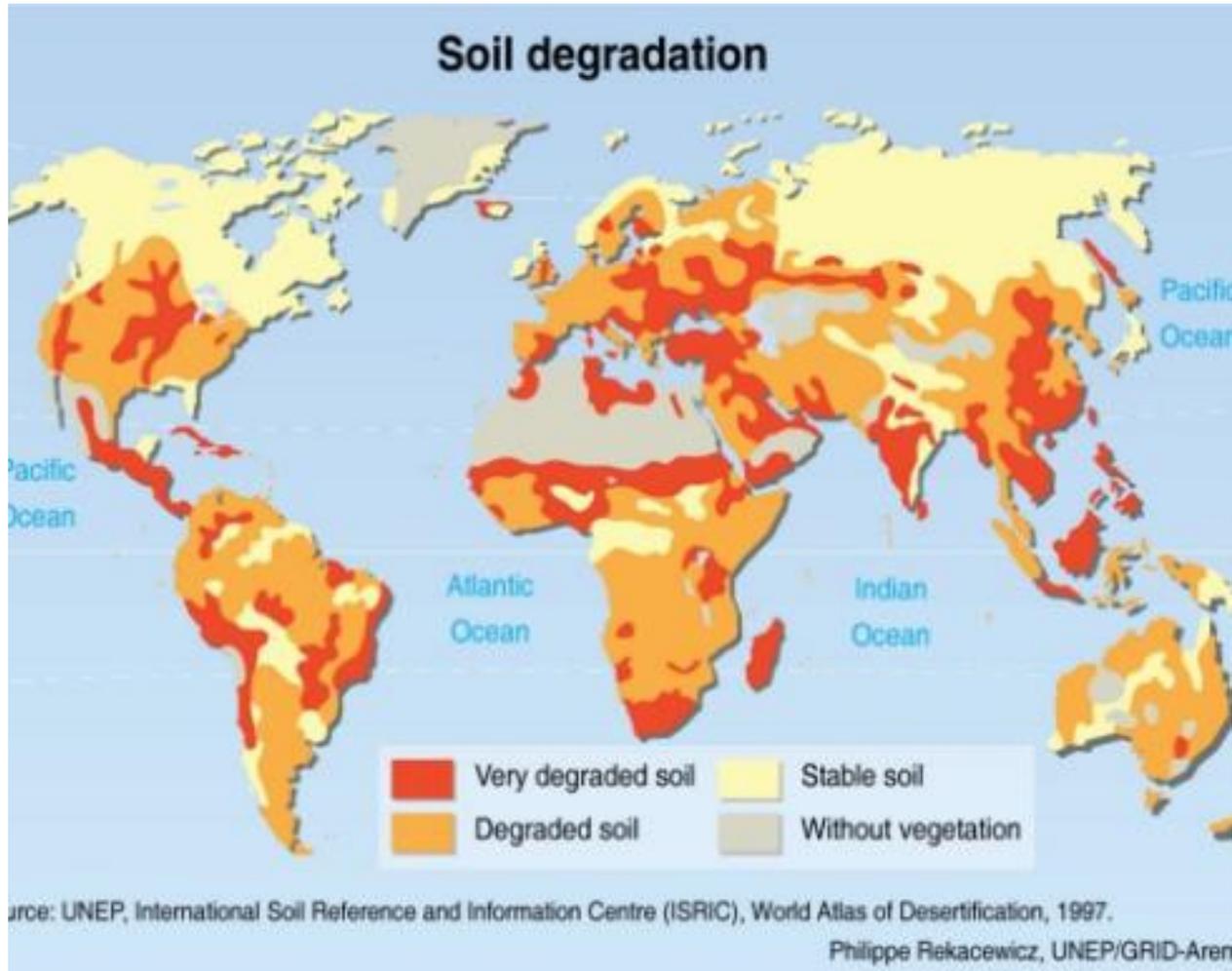
*"Elbow Site," Africa Center for Holistic Management, Zimbabwe*

The plants in the 2009 photograph (right) represent carbon dioxide rapidly removed from the atmosphere (3 years!) and transformed into living matter - both aboveground and deep in the soils. This was achieved through careful management of grazing animals to restore the grassland ecosystem.

The Africa Center for Holistic Management trains neighboring villages to do the same, those villages train their neighbors, and so on. This project is one of many (potentially thousands) worldwide that can do the work of soil building and carbon sequestration, and while resulting increased productivity is eventually self-sustaining, carbon farmers need funding for training and materials to get started.



# Scope of Opportunity for Capturing Atmospheric Carbon through Soil Regeneration



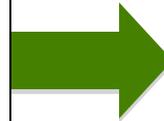
Billions of hectares worldwide can be restored. Soils are a carbon sink with the potential for storing many gigatons of greenhouse gases.



***Urgent Need:*** Transfer resources from where they are most concentrated to where they are most needed.

### **People and Institutions of Wealth**

- Abundant resources and money
- Net emissions of carbon into the atmosphere
- No carbon stored in soils



### **Carbon Farmers, Herders, Ranchers**

- Few resources, little money
- Net removal of carbon from atmosphere
- Large quantities of carbon stored in soils

Reversing desertification, mitigating global warming, and achieving environmental, social and economic justice are all facets of the same whole.



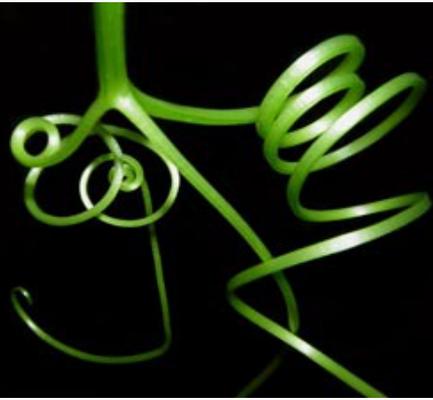
# Biodiversity for a Livable Climate (Bio4Climate)

We are a science-based non-profit working to collaborate with a range of organizations in a concerted effort to address climate change through eco-restoration and biological soil sequestration of carbon.

Our mission is to restore ecosystems to reverse global warming, regenerating healthy carbon and water cycles, and returning abundance to billions of acres of desertified land worldwide.

Changing the current climate conversation to include the power of the natural world is an essential first step.





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