



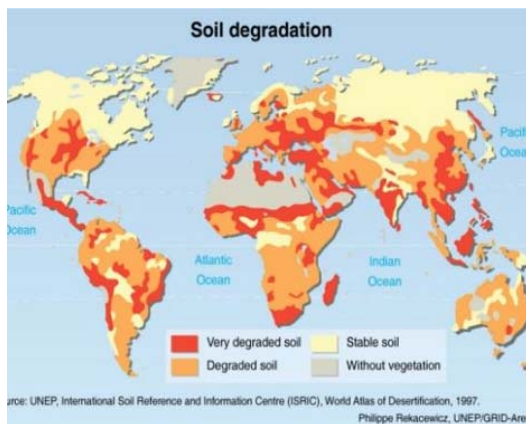
# The Global Opportunity for Capturing Atmospheric Carbon through Soil Regeneration

#3 in a series of

## Climate Restoration Solutions

A partnership of the Moral Action on Climate  
and Biodiversity for a Livable Climate

(see [www.bio4climate.org/solutions](http://www.bio4climate.org/solutions) for others)



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

### Some quick numbers and arithmetic

- There are 800 Billion Tons of Carbon (BTC) in the atmosphere
- We are at 400+ ppm of CO<sub>2</sub>
- So 1 ppm CO<sub>2</sub> equates to 2 BT of Carbon
- The surface of the earth is ca. 200 Billion acres
- The land area is ca. 65 Billion acres
- About 10 Billion acres worldwide is **degraded grasslands**
- With good management, we could sequester 1 Ton of Carbon/acre/year, giving the potential of 10 BTC/year, or **5 ppm/yr**
- There are 5 billion acres of **croplands** (much of which used to be forest)
- With good management, we could probably sequester 2 TC/acre/year, giving the potential of another 10 BTC/year, or **5 ppm/yr**
- If 10-15% of the foregoing 10+5 billion acres could be further converted to **wetlands** (say 2 B acres), and it sequestered 4 TC/acre/year, we could sequester ca. 8 BTC/year, or **4 ppm/yr**
- Through burning fossil fuels, etc., we are emitting ca. 10 BTC/year! (but see next page)



Doing the arithmetic:

grasslands: 9 B acres x 1 TC/acre/yr = 9 BTC/yr

croplands: 4 B acres x 2 TC/acre/yr = 8 BTC/yr

wetlands: 2 B acres x 4 TC/acre/yr = 8 BTC/yr

TOTAL: 25 BTC/year could be sequestered, or 12.5 ppm/yr

- 25 sequestered minus 10 emitted equals 15 net sequestered, which equates to 7.5 ppm/yr (potentially)
- 400 ppm (today) minus 280 ppm (goal) equals 120 ppm to sequester
- 120 ppm divided by 7.5 ppm/yr = 16 years! (potentially)

### The Boxes

Method	A: Typical rate of T/C acre sequestered	B: Potential worldwide application	C: Potential PPM sequestered per year	Difficulty & Action Needed
Restoring carbon into grasslands (see "Soil Carbon Cowboys")	1 Ton / Carbon per acre per year	10 Billion Acres of Pastures / Grasslands	5 ppm/yr	Medium  Actions: Change the paradigm and management of how we raise cattle, sheep, goats; educate ranchers; consumers support grass-fed/grass-finished meats
Sequestering more carbon in croplands (see "Organic Agriculture 2.0")	2 Tons / Carbon per acre per year	5 Billion Acres of Croplands	5 ppm/yr	Medium to Hard  Actions: Change the paradigm and management farmlands – away from herbicides, pesticides, insecticides; away from fossil-fuel based fertilizers; grow soil first, then crops
Restoring or letting wetlands return to about 10% of the land	4 Tons / Carbon per acre per year	2 Billion Acres	4 ppm/yr	Medium  Actions: Change how we think about wildlife – let beaver return to the land

For further reading: [www.bio4climate.org/solutions/](http://www.bio4climate.org/solutions/)

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