Soil as a climate solution

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The Nature Conservancy
4per1000Day COP24
Katowice, Poland, 13 Dec 2018
Alternative Futures

Tallis et al. 2018
OUR PRIORITIES

TNC can make a measurable and meaningful contribution to solving some of the greatest challenges facing people and nature today in these four areas:

- Tackle Climate Change
- Protect Land and Water
- Build Health Cities
- Provide Food and Water Sustainably
The Paris < 2° imperative: carbon removal required

100% Clean Energy + Carbon Dioxide Removal
The Forgotten Solution
Climate mitigation potential of nature – 11.3 GtCO$_2$e/yr

Near term, low cost & low regret options

Source: Griscom et al., PNAS (2017)
Soil: 5.5 Gt CO$_2$e yr$^{-1}$ ≈ 25% of land sector pathways

Bossio, Griscom et al. submitted
Soil $\approx 3.0$ Gt $\mathrm{CO}_2\mathrm{e} \text{ yr}^{-1}$ on croplands worldwide

Zomer, Bossio et al. 2017
IPCC SR1.5 2018: Soil – Low Cost High Potential ‘Negative Emissions’ Opportunity

Panel A - Estimated costs and 2050 potentials

- DACCS
- BECCS
- Enhanced weathering
- Biochar
- Afforestation and Reforestation
- Soil Carbon Sequestration

Costs in $ tCO₂⁻¹

Potentials in GtCO₂ year⁻¹
Soil

The Forgotten Forgotten Solution

“Despite scientific consensus, deployment of soil carbon storage and sequestration as a climate solution in practice remains limited. Soil is a relative newcomer to international climate mitigation conversations”

von Unger and Emmer, 2018
Assesses the state and prospects of carbon finance for soil carbon

https://global.nature.org/content/soil-carbon-markets
Soil carbon market projects are rare

Fewer than 20 projects in voluntary market; a few dozen in compliance market in Australia

North and South Dakota, US
Avoided Conversion ≈100 Mt CO$_2$e over 20 years
Rancher livelihood
Biodiversity

PHOTO Amy Carlson
Methodologies for croplands, grasslands savannahs and peatlands now exist

**Technical issues less problem than commonly perceived**

Methodologies for croplands, grasslands savannahs and peatlands now exist.

Northern Rangeland Trust, Kenya
Grazing Management
37 Mt CO$_2$e over 20 years
Pastoralist livelihoods
Wildlife habitat

PHOTO Ami Vitale

THE NATURE CONSERVANCY
Many barriers are now balanced with opportunities

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<tr>
<th>Barriers</th>
<th>Opportunities</th>
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<tr>
<td>Ignored by compliance markets</td>
<td>Current availability of standards and accounting methods (including additionality, leakage, non-permanence)</td>
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<td>Incurs considerable transaction costs in terms of project development, as long as level of experience and market perpetration is low</td>
<td>Modest market prices (for most project categories and countries)</td>
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<td>Overall credit demand has plateaued (though the effect from the Paris Agreement is not yet clear)</td>
<td>Accumulating best-practices</td>
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<td>No support to emissions trading from some influential NGOs</td>
<td>Wide networks advocating soil carbon restoration and conservation are active</td>
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<td>Issues with scaling up of projects in the land-use sector (tenure, measure, report and verify (MRV) requirements)</td>
<td>Growth potential of mitigation-cum-co-benefits</td>
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<td>Uncertain tenure situations in developing countries</td>
<td>Near-future aviation offsetting mechanism</td>
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<td>Multi-stakeholder character of land-use projects</td>
<td>New opportunities in compliance regimes (Paris Agreement but also individual countries)</td>
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<td>Role as laboratory for testing new technologies in the land-use sector</td>
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Numbers of stakeholders usually large, novelty required large investments in methodology development.
Triggering scale requires policy action.

Carbon projects are useful laboratories, supportive policy and public climate finance are essential for full-scale roll-out.
Priorities looking forward

Supporting political action and strategy development at all levels - NDCs and sub-national action, public and private

- Science – policy – public communication
- Trusted monitoring reporting and verification
- Providing practical tools and evidence to quantify soil carbon for national carbon accounting and markets
Global Soil Health Challenge

A global network to increase the pace and scale of multi-benefit soil management to achieve 25% of the needed carbon removal by 2030 for food and human security.
Breaking News 2050

“We are on track for a bright future globally thanks to healthy soils, clean energy, equitable food production and just policies”