Forest Carbon Offsets: Too Good to be True?

Presented by
Drs. Charles Canham and Joshua Ginsberg

www.caryinstitute.org/events
How much carbon do US forests store each year?

In 2018, the 691 million acres of US forestland sequestered **564.5 million tons CO$_2$e**

Net sequestration across all 5 categories **offsets 11%** of total US greenhouse gas emissions annually.

Source: Domke et al. (2020) USDA Resource Update FS-227
NOT ALL US FORESTLAND IS A CARBON SINK

Eastern US
- Sink
- 85% of total forestland sequestration

Rocky Mountain states
- Source
- Effects of fire and insect damage

Pacific Coast
- Sink
- High biomass stocks & sequestration rates, but threatened by fire
“Natural Climate Solutions”: Unrealistic Demands on Our Forests?

Raising the price of forest carbon credit from ~$10 to ~$50 a ton

Halting all harvests on private non-plantation forestland across the US

Making up the lost harvest through reforestation & thinning fire-prone forests in the west

Source: Fargione et al. 2018, Science Advances
Monetizing forest carbon offsets

Certify credits on both voluntary and compliance markets

Develop standardized methods for calculating the offsets generated by a very wide range of activities (not just forestry)

Emergence of a booming carbon offset market
3 KEY STANDARDS FOR CARBON CREDITS

**ADDITIONALITY**
Credits counted only for additional sequestration that happens above what would occur in the absence of the deal.

**NO LEAKAGE**
Harvest reduction to produce new offsets on one property doesn’t drive increased harvests elsewhere.

**PERMANENCE**
CO$_2$ removed from the atmosphere stays out of the atmosphere indefinitely.
These Trees Are Not What They Seem
How the Nature Conservancy, the world’s biggest environmental group, became a dealer of meaningless carbon offsets.

By Ben Elgin
Published: December 9, 2020, 5:00 AM | Updated: December 9, 2020, 3:15 PM

Rethinking forest carbon offsets
By Dr. Charles D. Canham
A critical examination of markets for forest carbon offsets in the United States suggests that offset deals provide little if any true “additionally” that enhances rates of forest carbon sequestration, and that the majority of credits sold on those markets, particularly for credits based on unrealistic baselines, provide no real offset to greenhouse gas emissions at all. The flaws in the markets are structural and deep, and may be irreparable.

Dec. 9, 2020
May 19, 2021
WHAT IS TRULY ADDITIONAL?
THE IMPORTANCE OF THE BUSINESS-AS-USUAL BASELINE

THE CALCULATION

Baseline - forest biomass is reduced by 90% in the first 10 years

“Gross” credits - reduced by 55% to allow for leakage (40%) and disturbances (15%)

Tradeable credits in first 7 years = 196,834 tons from 4,439 acres

Tradeable credits in next 3 years = 11,178 tons

THE RESULT

Case: Albany Water Board offset project

Project sells credits for ~ 197,000 tons over the first 7 years

But only 7,900 credits are expected from growth of current forests over the same period

96% Credits sold due to the wildly unrealistic baseline calculation

The result is 20-year baseline average
## Reality Check: True Potential Additionality

**Region: New York to Maine**

<table>
<thead>
<tr>
<th>Description</th>
<th>CO$_2$/ACE</th>
<th>Tons</th>
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<tbody>
<tr>
<td>50 yr average net sequestration given the actual mix of forests and current harvest practices</td>
<td>1.7</td>
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<tr>
<td>Potential sequestration if all harvests were halted</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Potential “additional” sequestration</td>
<td>0.57</td>
<td></td>
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<tr>
<td>Subtract 40% for leakage</td>
<td>0.37</td>
<td></td>
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<tr>
<td>Subtract 15% for disturbance</td>
<td>0.26</td>
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**Net proceeds per acre** (assuming 20% brokerage fee, and $4/acre compliance)

- @ $15/TON = $0.94
- @ $25/TON = $1.10
- @ $50/TON = $6.20
UNINTENDED CONSEQUENCES OF US FOREST CARBON OFFSET MARKETS?

POLLUTION CONTINUES IN VULNERABLE COMMUNITIES

DRIVES FOREST PRODUCTS INDUSTRY OVERSEAS
ACHIEVING NET ZERO:
WHAT ROLE SHOULD FORESTS PLAY IN A CARBON NEUTRAL, SUSTAINABLE WORLD?
WHAT CAN YOU DO?

Corporations/Businesses
Purchase legitimate carbon credits

Forest Owners
Evaluate whether joining the forest carbon market is of net benefit to attaining global carbon reduction goals

Use Your Voice
Demand transparency in net zero goals and in the methods employed for valuing carbon credit projects