
CARY SCIENCE CONVERSATION
VIRTUAL EVENT
Forest Carbon Offsets: Too Good to be True?
Presented by
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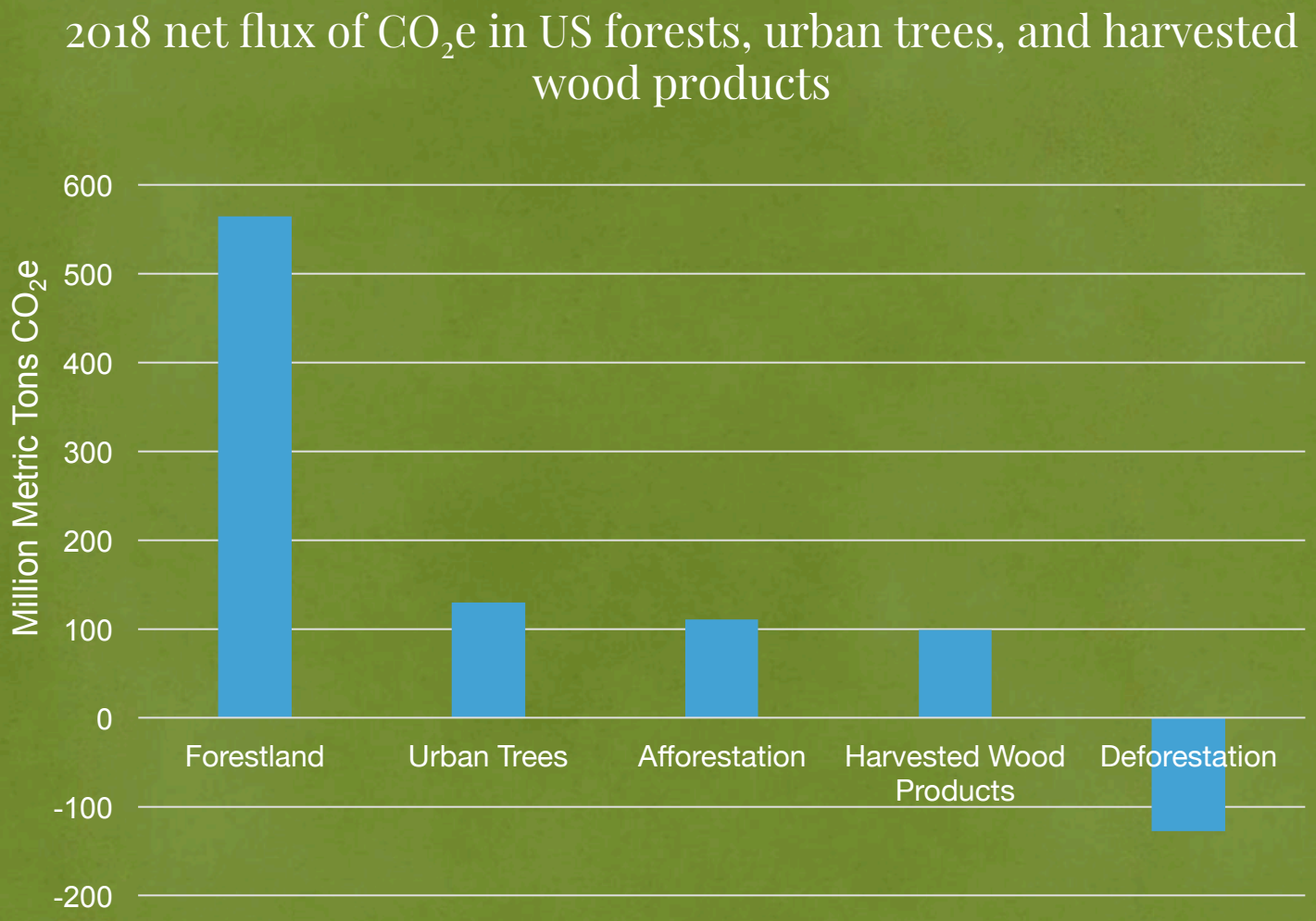
HOW MUCH CARBON DO US FORESTS STORE EACH YEAR?



In 2018, the 691 million acres of US forestland sequestered **564.5 million tons** CO_2e

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

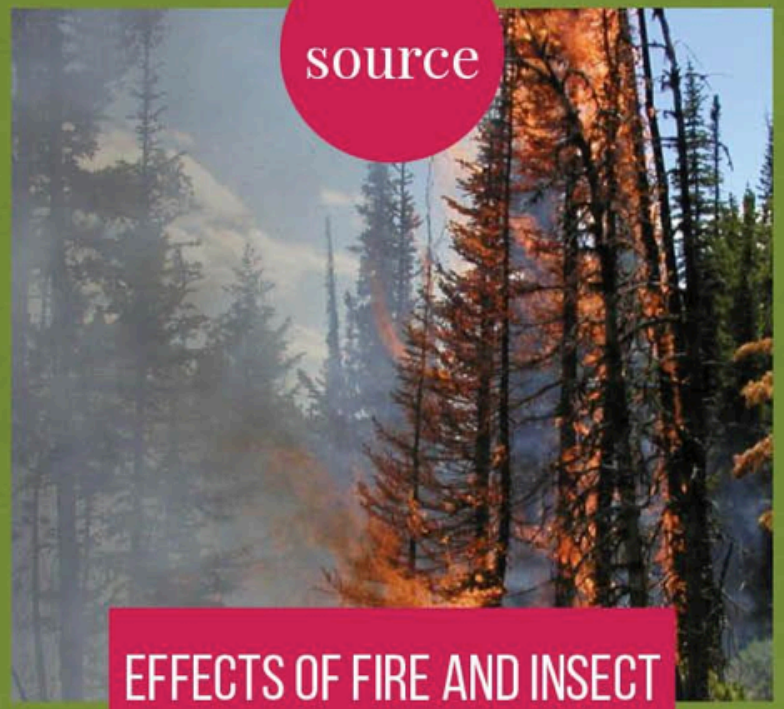
Source: Domke et al. (2020) USDA Resource Update FS-227

NOT ALL US FORESTLAND IS A CARBON SINK

Eastern US

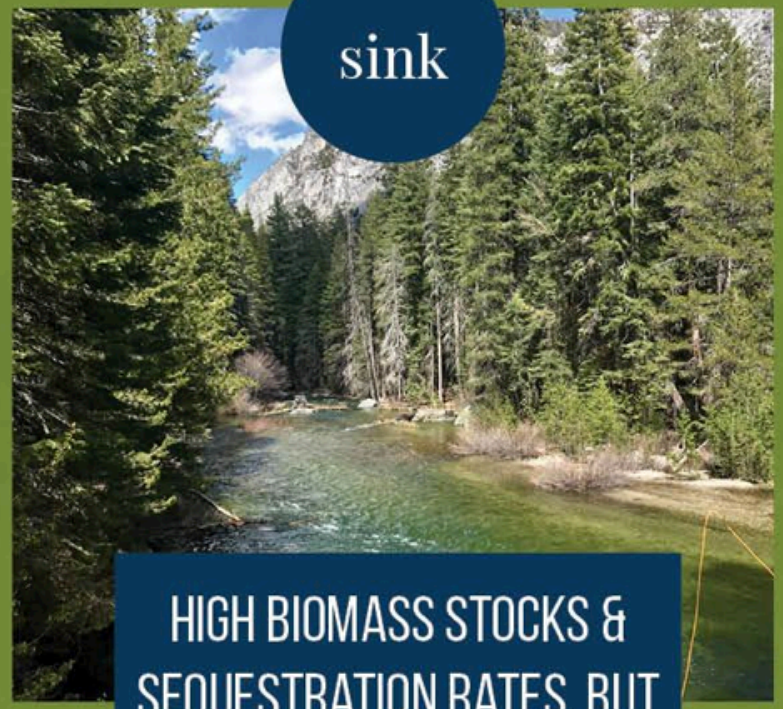
=85%
OF TOTAL FORESTLAND SEQUESTRATION

Rocky Mountain states



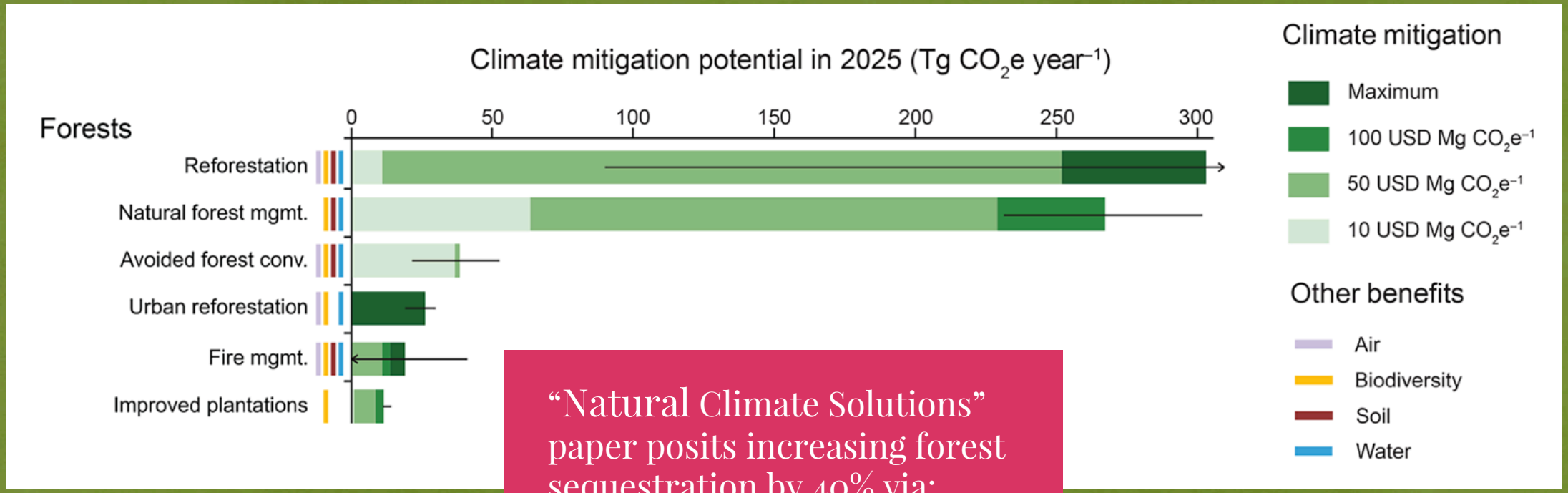
EFFECTS OF FIRE AND INSECT DAMAGE

Pacific Coast



HIGH BIOMASS STOCKS & SEQUESTRATION RATES, BUT THREATENED BY FIRE

"NATURAL CLIMATE SOLUTIONS": UNREALISTIC DEMANDS ON OUR FORESTS?



"Natural Climate Solutions" paper posits increasing forest sequestration by 40% via:

Source: Fargione et al. 2018, Science Advances

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

MONETIZING FOREST CARBON OFFSETS

Emergence of a booming carbon offset market

REGISTRIES

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)

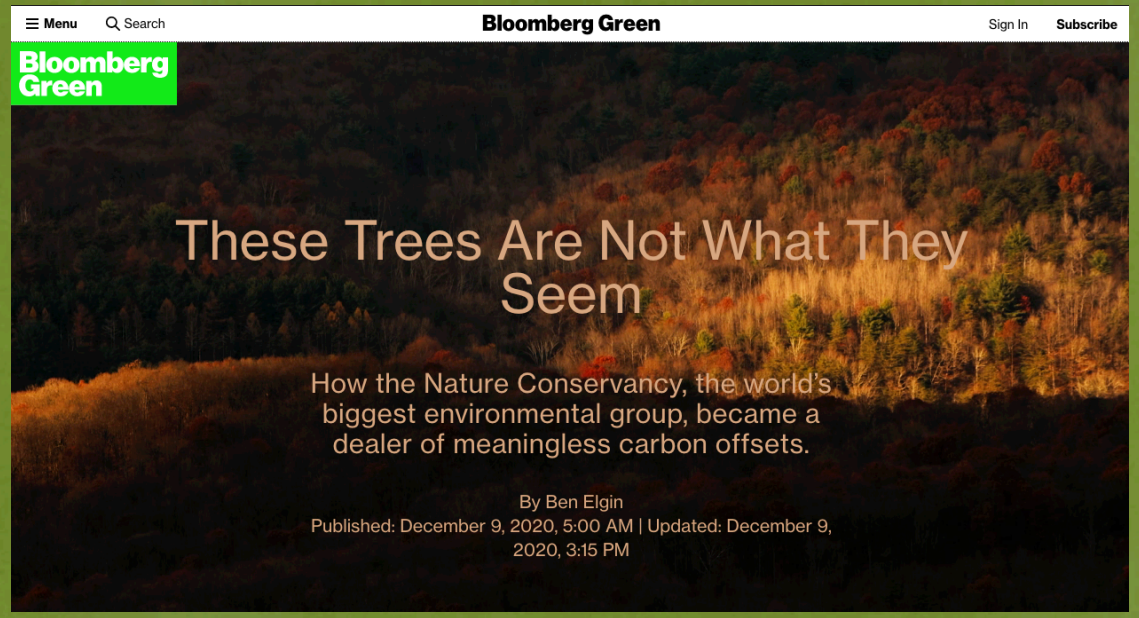
3 KEY STANDARDS FOR CARBON CREDITS

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

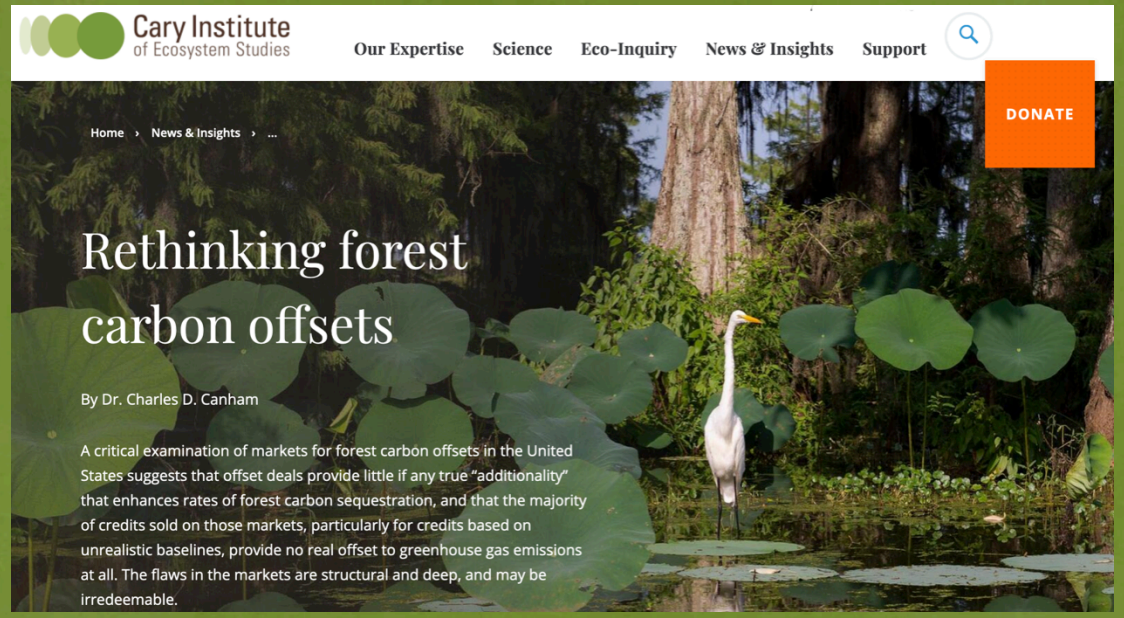
Harvest reduction to produce new offsets on one property doesn't drive increased harvests elsewhere

CO_2 removed from the atmosphere stays out of the atmosphere indefinitely

CARBON CREDITS IN PRACTICE



Dec. 9, 2020



May 19, 2021

WHAT IS TRULY ADDITIONAL?

THE IMPORTANCE OF THE BUSINESS-AS-USUAL BASELINE

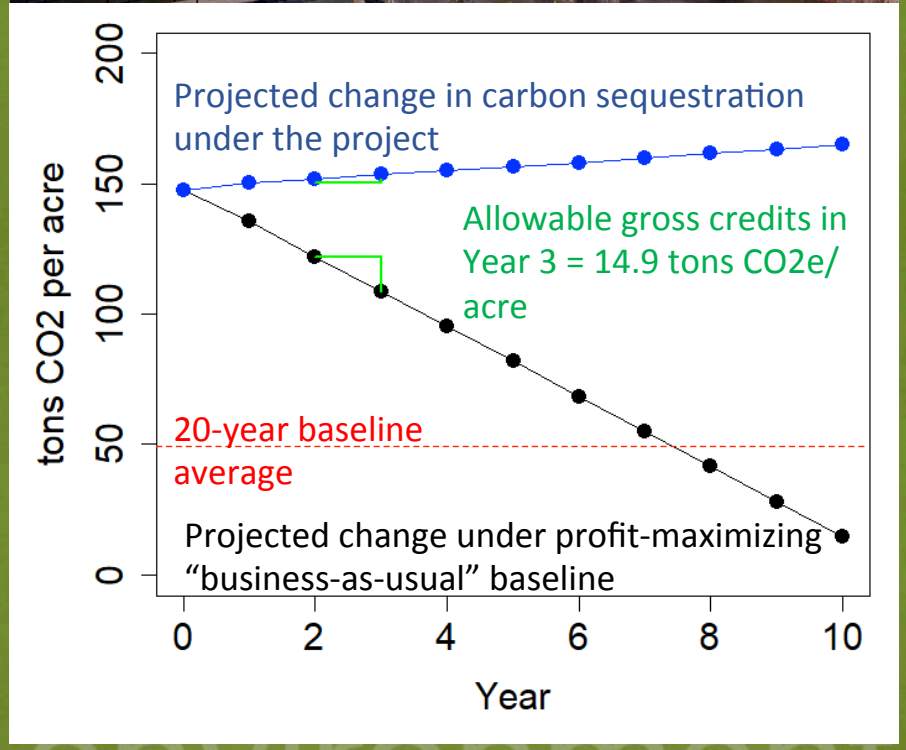
THE CALCULATION

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

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

REALITY CHECK: TRUE POTENTIAL ADDITIONALITY

	CO_2E/ACRE
50 yr average net sequestration given the actual mix of forests and current harvest practices	1.7 TONS
Potential sequestration if all harvests were halted	2.3 TONS
Potential "additional" sequestration	0.57 TONS
Subtract 40% for leakage	0.37 TONS
Subtract 15% for disturbance	0.26 TONS

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?

science for environmental solutions

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