Revisiting the Climate Narrative

The Scientific Consensus is Wrong: It's Soil, Not Oil

Abstract

The rise in atmospheric carbon dioxide is chiefly tied to land stewardship.

Farmers and loggers have removed the plants that, until the industrial era, kept the soil fungi alive, kept soil emissions nearby by breaking the wind, and soaked those up. The result is plumes of carbon dioxide.

Putting plants back in would curb these emissions. Farmers and loggers could address biodiversity loss in the process.

Auditing the deceitful carbon accounting shows that these emissions are the only ones that matter. A chicanery hides them from view while fueling dubious activities.

The contribution of fossil fuels to atmospheric carbon dioxide is small. It likely comes from emissions sources with no nearby plants, like industrial smokestacks. Bio-sequestration could curb that wasted carbon dioxide.

This topsoil loss is fueling desertification. Better land stewardship would reverse the latter.

Desertification, natural variability, and other man-made decisions can be confused as climate change by those who do not work with nature.

In the end, the carbon accounting framework is Orwellian Newspeak. So is the language used in nature conservation. The policies that they serve to justify warrant a closer look.

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Introduction

Land stewards often understand that topsoil loss contributes significant amounts of carbon dioxide to the atmosphere. Soil emissions dwarf industrial ones [1], after all. But farmers have been disturbing soil since long before the industrial era, so they're hard pressed to precisely explain what changed around then.

Topsoil loss is a concern irrespective of the climate narrative. It matters if you value healthy food grown in thriving ecosystems. It makes sense to promote gardening, urban agroecology, and regenerative farming on that basis alone, in fact. Climate activists would be more effective promoting these, because doing so has no downsides and depends on no one.

Prompting climate activists to promote these activities is also a great way to make them (unwittingly) work against those who advocate eating bugs. Activists are typically on board with gardening and regenerative farming already. Teaching gardening at schools or getting into urban or peri-urban farming are very effective ways to promote using less fossil fuels. Simply bring that up. More food sovereignty won't hurt your community. And as we're about to discuss, regenerative farming is enough to turn around the rise in atmospheric carbon dioxide.

Canopy Loss

At the same time, regenerative farming can build soil without addressing the key reason topsoil ends up in the atmosphere. Research on forestry emissions inadvertently reveals what that is.

Briefly, a cleared forest releases a slow-motion plume [2] of carbon dioxide as forestry waste decomposes. Researchers detect these using instruments that monitor net flows above the canopy. This continues until the new canopy has grown enough to soak that up. By contrast, thinning a forest leaves the canopy intact. That avoids these releases [3] to begin with.

This highlights three things that happen when you clear a field. (1) You remove the canopy above ground. (2) You leave behind organic waste that decomposes. (3) Plants soak up the resulting soil emissions.

Land stewards have been removing the plants that offset these soil emissions since the industrial era.

Loggers adopted clear-cutting at the turn of the 20th century. A cleared forest is a wide open field. The soil fungi, which need plants for sugars, eventually die. The wind takes the soil emissions up in the atmosphere before nearby plants soak them up.

From the 19th century onward, farmers began managing ever larger fields as family farms vanished, land changed hands, and factory farming took off. They removed hedgerows that limited tillage erosion while keeping the soil fungi alive, breaking the wind, and soaking up the soil emissions.

Changes also happened in places that had little or no tree canopy to begin with. American settlers moved West just as steel plows made it practical to till the Great Plains, for instance. Wide open farm fields and overgrazed paddocks soon replaced large swaths of prairie. Dead waters might also be emitting their soil carbon in shallow areas — if only as methane.

Curbing these plumes of carbon dioxide is straightforward. When you clear a field, leave plants around to soak up the soil emissions. A simple way to do that is alley cropping. The alleys can be wide enough to not block sunlight, if the ancient fields that dairy cows continue to graze in Normandy are an indicator. Planting directly into clover and other well designed intercropping systems would work too.

It follows that farmers could stick with planting rows of coppice trees on contour to avoid these plumes. Doing so offers many benefits [4]. Trees act as windbreaks, which slows down pests. Trees on contour help water soak in, which reduces the need to irrigate. Leaves and tree roots release nutrients when they decompose. Short-cycle coppicing ensures the trees won't burden nearby crops. Biomass is a renewable energy source. The diversified revenue and the lower input costs typically make alley cropping profitable. And it's a stepping stone for farmers to go regenerative.

Better yet, farmers could restore wildlife habitat by semi-managing narrow bands around these trees like roadsides. There are better ways to address biodiversity loss, like food forest gardening, syntropic agroforestry, or mob grazing. At the same time, rewilded gardens, roadsides, creeks in logged areas, and other examples show that small patches and narrow bands left to nature, while far from ideal, are good enough. They're the ecosystem equivalent of feeding a caged animal just enough to not starve.

Accounting Chicanery

You can tell that plumes of carbon dioxide tied to canopy loss are the only ones that matter by auditing the deceitful carbon accounting.

The salient point to know about the carbon accounting framework is that it mirrors what goes on in a financial statement. Emission sources such as fossil fuels are like the expenses you'd book in a profit and loss statement. Carbon stocks [5] such as forests are like balance sheet entries.

Would-be carbon income sources could not have been better designed to benefit the few at the top while crushing the many at the bottom. They'd include allowances (the cap in cap and trade), rewards for putting energy from sanctioned sources on the grid (like solar buyback programs), and carbon offsets (indulgences). Those are chiefly sold by large landowners, the conservancies who run their hunting estates [6], and fossil fuel giants [7].

Carbon stocks get little attention beyond the upsetting realities that green finance is fueling. Noteworthy ploys include the 30x30 plan [8], which is set to become the biggest land grab in history [9], and the ongoing efforts to turn nature into an asset class [10]. Chris Lang's REDD Monitor [11] and indigenous rights defense outfits like the World Rainforest Movement [12] chronicle the failed projects, the land grabs, the forced evictions, the human rights violations, and other harrowing realities that occur behind the scenes.

These distract attention away from the fact that carbon stocks work like subsidiaries would on a balance sheet. They sport a value that fluctuates over time while keeping what goes on inside them out of scrutiny. The vast majority of carbon emissions occur inside these black boxes.

This creates a double standard. Cherry picked sources like fossil fuels and cow burps get vilified as reducible flows. Other sources get flatly ignored by non-experts. Charts and visualizations intended for the public have fine print to exclude them, track carbon stock changes, or expressly discuss industrial emission sources. Experts track carbon stock changes instead as proxies. Those rely on long-term estimate models that mostly capture land use changes while silencing internal dynamics.

Biomass energy is a good window into how these models work and what this arrangement allows. Loggers practice rotational harvesting with no land use changes. Patches of old trees soak up carbon dioxide while patches of saplings release some in their first few years. Loggers claim that this balances out over time, and thus that their overall carbon stock is constant on average — give or take what they file under Land Use 4.A.1 "Forest land remaining forest land."

This enables biomass energy producers to argue that burning wood pellets made using forestry waste produces no (extra) carbon emissions. To wit, forestry waste emits carbon dioxide while decomposing. There is no land use change, so these get counted in carbon stock models. Counting the emissions from burning that waste would be double counting. It follows that burning biomass is a low carbon energy source. The bean counting checks out. The framework does not.

Soil Emissions

Tracking emissions using the carbon accounting framework makes sense if and only if an important condition is met: avoidable carbon emissions that disappear inside carbon stocks are negligible compared to those that appear as reducible flows. The contrary is like analyzing a household's budget and cutting expenses while ignoring big ticket items like revenue and rent.

Forestry emissions research shows that these hidden sources of carbon emissions are anything but negligible. A cleared forest releases kilograms of carbon dioxide [2] per square meter into the atmosphere before the canopy recovers enough to soak up the slow-motion decomposition beneath it. A thinned forest, which retains a canopy, produces no such net emissions [3].

Kilograms of avoidable emissions per square meter is on the order of 10 tons per acre. Loggers clear over 60 million acres [13] each year. So that's on the order of a German economy worth of trivially avoidable emissions. These ballpark numbers are no doubt off by a wide margin, since not all forests emit like boreal forests. The point stands irrespective: the long-term models used to track carbon stocks keep avoidable emissions that rival industrial ones out of view. At minimum, this is sketchy accounting.

Reduced-impact logging [14] makes this accounting objectionable. It shamelessly proposes to make carbon stocks more effective by (among other activities) reducing such forestry emissions. And loggers stand to pocket carbon offsets paid by guilt-tripped consumers for their trouble.

Farming emissions are much larger. The plumes are such that you can tell [15] when farmers are clearing or burning fields on NASA visualizations. The carbon accounting framework invites asking how much carbon soil can sequester. But this ignores the elephant in the room. The question that actually matters is how to not lose soil carbon to begin with.

Industrialized Bio-Sequestration

Isotopic analyses have traditionally led scientists to blame fossil fuels for the rise in atmospheric carbon dioxide. The canopy explanation laid out above is not incompatible with those results. Plant canopy is soaking up nearby fossil fuel emissions per above. Tilling and harvesting operations then release it into the atmosphere. NASA visualizations [15] show that it then migrates to the Arctic. And the Arctic ocean then absorbs most of it. Topsoil carbon is fueling the rise in atmospheric carbon dioxide, and this pathway is moving topsoil carbon into the ocean. That slowly cycles old carbon out of the atmosphere. Hence the isotope analyses that find that the carbon in the atmosphere is tied to fossil fuels. It's because it is.

With this being said, fossil fuels do contribute atmospheric carbon dioxide directly. 12% of the total [16], according to a paper that got criticized over unfortunate remarks in it. 2020 inadvertently revealed that this number is in the right ballpark. Atmospheric carbon dioxide increased like clockwork [17] despite the drop in fossil fuel use [18] tied to economic lockdowns.

12% is high. It is much higher than what industrial activities contribute to the carbon cycle. But then, the latter is misleading too. Consider how fast plants soak up the spring plume of carbon dioxide in NASA visualizations [15]. Contrast that with how the autumn plume persists. A farm field has little carbon dioxide around it in the summer. The carbon cycle's stock and flow modeling silences these dynamics. NASA's OCO-3 mission [19] ends up looking for mystery sinks instead of relevant sources. The 12% number likely comes from sources with no nearby plants, like industrial chimneys.

Curbing that waste is straightforward. Capture the smokestack output using a setup like a rocket mass heater. Put the heat to good use, like drying wood pellets made from short-cycle coppice harvests. Pipe the output towards hemp fields. Use a drip irrigation like system reminiscent of those used in open field experiments [20]. Use alley cropping on contour to help break the wind and keep the water from running off. The plants will know what to do with carbon dioxide and water. Hemp soaks up toxins, so there is little need for filtering. It has many industrial uses, like paper.

Bubbling this output in pools to grow duckweed is another good option. Startups are already looking into using captured carbon dioxide to grow algae. Duckweed grows fast and has a great nutrient uptake. Growing it is a good way to process sewage while producing protein-rich chicken feed and potentially biofuel [21]. The former would likely require filtering out toxins first. A hydraulic trompe might be enough to do that. It would separate toxin-laced water from pressurized gas that would be needed anyway. Irrigate nearby hemp fields using the toxin-laced waste water.

With this being said, addressing topsoil loss would quickly reintroduce the problem that plants were struggling with before the industrial era. Namely, too little carbon dioxide. Stalactites, stalagmites, shell producing animals, and other processes have been mineralizing carbon dioxide for millions of years, with occasional spikes that break this downward trend. Plants have had to adapt to having ever less carbon dioxide to work with. The recent uptick made our planet greener. Therefore, leaving the carbon dioxide up in the atmosphere makes sense too.

Man-Made Desertification

This discussion has avoided the merits of the climate narrative until now because it would have distracted. Curbing plumes of carbon dioxide tied to poor land stewardship is straightforward, and per above those are the only emissions that matter. Atmospheric carbon dioxide varies during the year. The seasonal bottoms are around where [17] highs were years earlier. Better land stewardship could soak up atmospheric carbon dioxide quickly, so any effects of carbon dioxide on climate would be no cause for concern. With this being said, topsoil loss genuinely affects the climate.

Essentially, soil with less carbon holds less water [22], as does soil with less cover. Runoffs lead to erosion, bare soil, and ponds. The first means more topsoil loss. The other two fuel water evaporation. Water vapor is the greenhouse gas that actually matters, so climate modelers may want to mind soil management more. The real concern, however, is rainfall.

Inland water evaporation contributes to [23] inland rain. Water that has run off downstream cannot produce downwind rain. Drying landscapes become drier and drought prone over time, with intermittent floods tied to runoffs. Droughts and floods fuel yet more topsoil loss. And with it, this cycle.

Topsoil loss is fueling desertification, in other words. Or more precisely, the two are the same. Plantations, overgrazing, and infrastructure like roads that channel water downhill compound the above issues and habitat loss. Those are unequivocally man-made. Anthropogenic climate change could be renamed man-made desertification. It is being counterbalanced by other man-made processes. Human activities are diverting entire rivers and depleting underground water reservoirs. These will eventually run dry, because soil evaporation and runoffs also reduce water infiltration.

Desertification is straightforward to reverse. Harvest water, slow it down to help it soak in, and limit soil evaporation using a combination of plants, mulch, and windbreaks. That will rehydrate a landscape [24], as evidenced by the restoration of the Arvari River, the Loess Plateau, and other projects. It can also re-green a desert, as has been done in Al Baydha [25] and Niger [26].

We can even do that at scale with bulldozers and seed pellets. The Great Depression era swales near Tucson, AZ [27] show that abandoned mounds are enough to re-green a desert. Homesteaders and guerrilla gardeners routinely use seed pellets to plant fruit trees. Soak the pellets in strong tea to repel the animals that might eat the seeds. Add temporary fencing to keep grazers from eating the saplings. Bulldozers, drones, and fencing could rapidly transform entire landscapes.

Disputable Science

There could be more to the story than desertification being construed as runaway climate change, but the evidence for anything else is slim.

The would-be effects of climate change seldom impress those who work with nature for good reasons. Land stewardship and natural variability can usually explain what gets attributed to climate change. California's Central Valley, for instance, illustrates how sun-exposed, irrigated soil acts as a dark body that heats up the water vapor it releases. Like Death Valley, it is surrounded by hills and mountains. Throw in a drought, a high pressure zone that lingers over the area, and a Colorado river worth of water, and the conditions are set to get scorching heat — no climate change needed.

The would-be extinction crisis is another good example. Nothing is less convincing that there is a problem than a scientist who elaborates about how low insect populations are, and then explains how to turn a garden into an insect haven. Would-be endangered species just need toxin-free habitat. Patches and bands are enough as discussed earlier. We could be managing habitat into our growing systems, at that, as is being done in permaculture circles. Overfishing is not a problem either. We could be creating fish habitat, as is being done in marine permaculture circles.

The shoddy decisions that amplify natural calamities can explain a lot too. Floods, for instance, are largely man-made. Properties that make active efforts to harvest water show that most heavy rain events can be tamed [28] [29]. Contrast that with California, where 95% of the early 2023 rainwater just washed away. Modern landscapes are effectively designed to channel water downhill. Roadsides, paved riverbeds, farm fields where little efforts are made to harvest rainwater, and more lead to runoffs. Homes built inside flood catchments in hurricane prone cities are not helping either.

Wildfires are largely man-made too. Beyond the accidents that start them, loggers tend to grow forest edge species that are adapted to prairie fires. These grow fast to quickly outgrow the occasional flames on the ground. They also burn like matches (explosively so, at times) so fires move past before killing them. Growing plantations of such trees in drought-prone areas is dubious. Doubly so by logging roads that channel water downhill, with unburnt scrubs and forestry waste near poorly maintained electricity lines. Ignite the canopy and you get a raging inferno.

Model predictions are another issue. Scientists create and test climate models using data from the past. Two key caveats are data quality and overfitting. Temperature readings in urban heat sinks or near plantations full of bare soil are dubious at best. So are reconstructed data. Poor data would not matter if the predictions checked out, but they do not. Using historical data to gauge a model's accuracy invites making it fit so well it looks accurate while having no bearing with reality. What matters is how accurate predictions made on the record are a decade or two from now.

The cherry picking and massaging of data to make it fit the narrative has been so thoroughly picked apart [30] [31] [32] that it warrants a passing mention only. In defense of the scientists, the would-be consensus doesn't hold either [33]. Speak out if you're in the shrinking group of experts that hasn't yet done so.

Conclusion

Put together, the climate narrative illustrates the adage that propaganda is as much about controlling what people think as it is about controlling what people think about.

It is fair to describe the carbon accounting framework as a textbook case of Orwellian Newspeak. It is shaping conversations in specific directions without its users noticing. So do the carbon cycle, other stock and flow like models that silence internal dynamics, and predictive models that do without reality checks. The result is an expensive train wreck.

Climate science is not the only field whose language has been captured, at that. Conservation is another. As critic Mordecai Ogada points out, white ranchers explore and hunt game, whereas black herders encroach and poach bushmeat. The field oozes of cultish, patriarchal language. To wit, replace Nature with God in conservancy discourse, and you'll often get a decent sermon for a puritan parish. Nature doesn't need to be protected, much less locked up or defended against invading species that could sully its purity. It needs only to be loved, nurtured, and embraced for its fertility.

As noted earlier, this scientific newspeak is not benign. It is being used to justify neocolonial land grabs [34] [35] and other activities that warrant a closer look. The original version of this article [36] expands on the main ones and highlights ways to thwart them.

Follow-up research would be desirable in two areas. The first, to look into the alley width needed to curb the plumes of carbon dioxide while keeping yields optimal. The other, to establish intercropping best practices to put these plumes to good use after harvesting operations. One option would be to grow different crops in each row. Another would be to grow directly into clover and mow before sowing into it. Yet another would be to further Masanobu Fukuoka's idea of sowing three rice varieties in one pass to get three separate harvests. A combination of these would likely be ideal.

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