Q&A: Climate scientist reveals how nature can fight climate change, and how it can't

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Not long ago, the idea that nature could be humanity's ally against climate change was not widely known, to say the least.

Research has shown that nature is already "mopping up" about half of human-caused greenhouse-gas emissions every year, despite our impacts on ecosystems. And there's more: If we protect and restore ecosystems, nature can reverse climate change—providing more than a third of the global action needed to avoid a climate crisis, according to a landmark 2017 study.

Since that study was released, "natural climate solutions" have increasingly moved into the mainstream. Many governments and businesses are now including nature in their climate commitments, and the wider world is taking notice: Between 2019 and 2021, media stories mentioning natural climate solutions grew a staggering 263%.

"Perhaps unsurprisingly, this rise in recognition has been accompanied by some confusion about what natural climate solutions are and how they work," said Conservation International climate scientist Bronson Griscom, who led the 2017 study. "We felt it was important to unpack that."

Griscom sat down with Conservation News to explain what natural climate solutions are (measurable, restorative) and what they aren't (greenwashing).

Why was it important to develop a shared understanding of what natural climate solutions are?

This idea that nature and climate are intertwined—and if we don't protect and restore nature, we won't save the climate—is catching on. For example, it's reflected in new global commitments, like the agreement adopted at the U.N. by roughly 190 countries to protect 30% of the Earth's land and seas by 2030. That's very encouraging. It means we're entering a new phase—transitioning from concepts to action,

rolling up our sleeves and getting into the nitty gritty of what has to happen to avert a climate disaster.

At the same time, we've noticed there are misconceptions about what natural climate solutions actually are—which is a barrier to fully realizing their potential. So, we published a new paper in *Nature Communications* to clarify what makes for an effective natural climate solution.

You mentioned misconceptions—like what?

Carbon credits—which are just one way of delivering natural climate solutions—have at times been criticized as greenwashing. Some have said they're a cover for bad actors to continue business as usual—say by planting trees where they would have been planted anyway. Let me be clear. That is exactly what they are not. True natural climate solutions are backed by science and support meaningful and lasting reductions in carbon pollution, either through avoided emissions or improved carbon sequestration.

A recent report looked into how companies are confronting climate change in their operations. It found that companies that buy carbon credits—some of which pay for the protection of forests that remove carbon from the atmosphere—are doing more to reduce their own climate footprints than companies that don't. They're outperforming their competitors in addressing climate change in their supply and value chains.

So what principles did you come up with?

We came up with five key principles that should be part of any effective natural climate solution, no matter where it is implemented or by whom.

In summary, natural climate solutions must do the following:

- Preserve an ecosystem and/or make progress toward returning it to its natural state. For example, some foresters are both protecting their forests from conversion while also transforming their logging and forest management practices to restore their forests from previous degradation.
- Sustain and improve the resilience of rural economies and biodiversity in the face of a changing climate. For example, planting non-native trees in the African savanna is not a natural climate solution. Why? Those trees capture carbon, but they are more fire prone and would destroy the high biodiversity of the savanna. In contrast, restoration of native trees in places they have been cleared is a natural climate solution.
- Represent a change in business-as-usual land stewardship practices. In other words, natural climate solutions must be the result of changes in human behavior and provide lasting climate benefits that wouldn't otherwise occur, such as preventing a forest from being cleared for use as a pasture or a palm oil plantation.
- Have measurable climate benefits. If we don't understand how much carbon they capture, we cannot claim they are a real climate solution.
- Finally, natural climate solutions must respect the rights, knowledge, culture and livelihoods of Indigenous peoples and local communities, which have in the past been overlooked.

Can you give me an example?

Yes. Conservation International's carbon project in the bay of Cispatá, on Colombia's Caribbean coast, reflects these principles.

Left standing, mangroves are climate superstars—a single square mile of

mangroves can lock away as much climate-warming carbon as the annual emissions of 90,000 cars. However, despite protections from the Colombian government, mangroves in Cispatá Bay continued to be cleared for cattle and agriculture. Essentially, they were more valuable dead than alive.

This project flipped that economic script. It was the first to accurately measure the carbon stored in the mud mangroves hold between their roots. That opened the door to financial incentives to protect them. In addition, the local community is actively engaged in the project's governance and in carrying out monitoring, data and species conservation.

This speaks directly to the need for natural climate solutions to be measurable and have a positive impact on local people. Over the project's 30-year lifespan, the mangrove forest is expected to prevent the release of approximately 1 million metric tons of carbon—equivalent to taking 184,000 cars off the road for one year—and support the livelihoods of 12,000 people who live in or near the project.

What do you hope this paper accomplishes?

My hope is that this paper reduces the friction that has arisen around misunderstandings about natural climate solutions so that we can focus squarely on expanding them. Time is not on our side.

In order to avoid catastrophic climate change, the land sector—including agriculture and forestry—must reach net-zero emissions by 2030. It is critical that we have a shared understanding of natural climate solutions so we can deliver them quickly and effectively.

More information: Peter Woods Ellis et al, The principles of natural climate solutions, *Nature Communications* (2024). DOI:

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