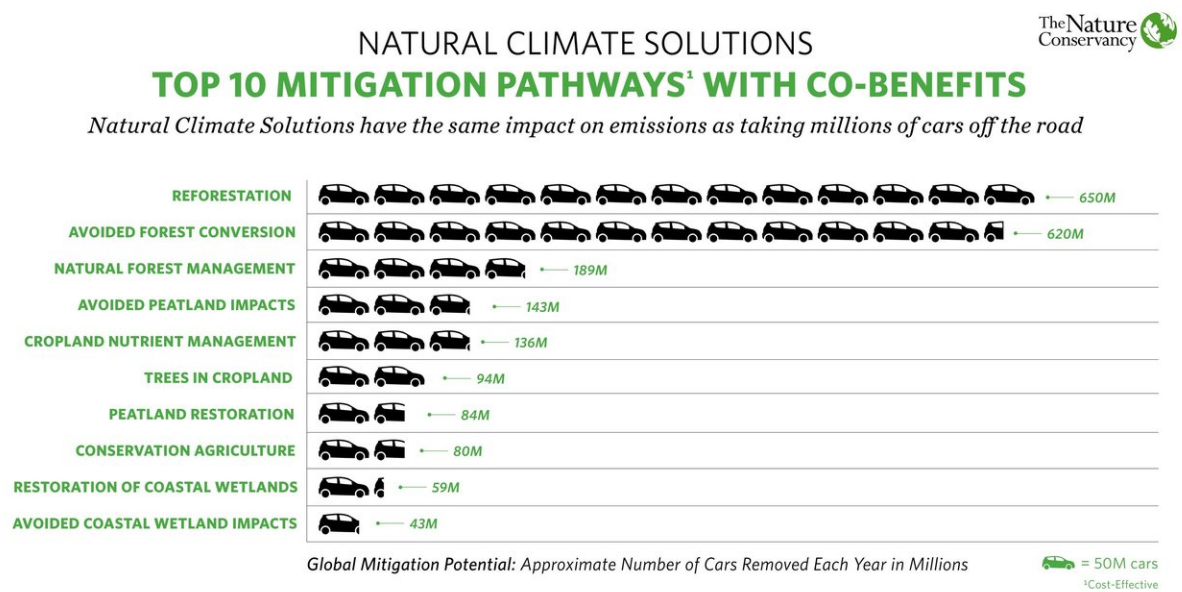


New study finds nature is vital to beating climate change

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Natural Climate Solutions have the same impact on emissions as taking millions of cars off the road. Credit: The Nature Conservancy

Better stewardship of the land could have a bigger role in fighting climate change than previously thought, according to the most comprehensive assessment to date of how greenhouse gas emissions can be reduced and stored in forests, farmland, grasslands and wetlands using natural climate solutions.

The peer-reviewed study, led by scientists from The Nature Conservancy and 15 other institutions, and published today in the journal *Proceedings of the National Academy of Sciences*, expanded and refined the scope of land-based climate solutions previously assessed by the United Nations' Intergovernmental Panel for Climate Change (IPCC). The findings are expected to bolster efforts to ensure that large scale protection, restoration, and improved land management practices needed to stabilize [climate change](#) are achieved while meeting the demand for food and fiber from global lands.

Accounting for cost constraints, the researchers calculated that natural climate solutions could reduce emissions by 11.3 billion tonnes per year by 2030 - equivalent to halting the burning of oil , and offering 37% of the emissions reductions needed to hold global warming below 2 degrees Celsius by 2030. Without cost constraints, natural climate solutions could deliver emissions reductions of 23.8 billion tonnes of carbon dioxide equivalent per year, close to a third (30%) more than previous estimates .

Mark Tercek, CEO The Nature Conservancy said: "Today our impacts on the land cause a quarter of [greenhouse gas emissions](#). The way we manage the lands in the future could deliver 37% of the solution to climate change. That is huge potential, so if we are serious about climate change, then we are going to have to get serious about investing in nature, as well as in clean energy and clean transport. We are going to have to increase food and timber production to meet the demand of a growing population, but we know we must do so in a way that addresses climate change."

Christiana Figueres, convener of Mission 2020 and former head of the UN Framework Convention on Climate Change (UNFCCC), said: "Land use is a key sector where we can both reduce emissions and absorb carbon from the atmosphere. This new study shows how we can

massively increase action on land use - in tandem with increased action on energy, transport, finance, industry and infrastructure - to put emissions on their downward trajectory by 2020. Natural climate solutions are vital to ensuring we achieve our ultimate objective of full decarbonisation and can simultaneously boost jobs and protect communities in developed and developing countries."

The Biggest Natural Climate Solution: More Trees

According to FAO, 3.9 billion hectares or 30.6% of total land area is forest. The researchers found that trees have the greatest potential to cost-effectively reduce carbon emissions. This is because they absorb carbon dioxide as they grow, removing it from the atmosphere. The results of the study indicate that the three largest options for increasing the number and size of trees (reforestation, avoiding forest loss, and better forestry practices) could cost-effectively remove 7 billion tonnes of carbon dioxide annually by 2030, equivalent to taking 1.5 billion gasoline-burning cars off the roads.

Restoring forests on formerly forested lands, and avoiding further loss of global forests, are the two largest opportunities. Success depends in large part on better forestry and agricultural practices, particularly those that reduce the amount of land used by livestock. Reducing the footprint of livestock would release vast areas across the globe for trees and can be achieved while safeguarding food security. Meanwhile, improved forestry practices across expanded and existing working forests can produce more wood fiber while storing more carbon, maintain biodiversity, and help clean our air and water. The researchers found that the top five countries where forests could reduce emissions the most are Brazil, Indonesia, China, Russia and India.

The Vital Role of Agriculture

According to FAO, agricultural lands cover 11% of the world's surface, and changing the way we farm these could cost-effectively deliver 22% of emissions reductions according to the study, equivalent to taking 522 million gasoline cars off the road. Smarter application of chemical fertilizers (Cropland Nutrient Management), for example, improved crop yields while reducing emissions of nitrous oxide, a greenhouse gas 300 times more potent than [carbon dioxide](#). Other effective interventions include planting trees among croplands and improved management of livestock.

Dr. Ibrahim Mayaki, former Prime Minister of Niger and CEO of NEPAD (New Partnership for Africa's Development), said: "Since COP 21 in December 2015 in Paris, the major role of agriculture and forestry to combat climate change has been clearly recognized. As developed countries put more emphasis on mitigation, developing countries try to adapt their agriculture to a changing world. This new study underlines the importance of nature, and especially trees and soils, as support for [carbon sequestration](#) through the cycle of plants based on photosynthesis. Promoting carbon sequestration in soils, with adapted agricultural and forestry practices, could lead to win-win solutions on mitigation, adaptation and increase of food security. Those are the triple objective of the "4 per 1000" Initiative already supported by 250 countries, organizations and institutions. We know what to do, now it's time to act!"

Paul Polman, CEO of Unilever, said: "Climate change threatens the production of food staples like corn, wheat, rice and soy by as much as a quarter - but a global population of nine billion by 2050 will need up to 50% more food. Fortunately, this research shows we have a huge opportunity to reshape our food and land use systems, putting them at the heart of delivering both the Paris Agreement on Climate Change and the Sustainable Development Goals."

The Coastal Carbon Sink

Wetlands are less extensive than agricultural or forest lands, covering 0.7 - 0.9 billion hectares or 4% - 6% of the land surface of the Earth, but they hold the most carbon per acre and offer 14% of potential cost-effective natural climate solutions. Avoiding the draining and conversion of peatlands, is the largest of these opportunities. Peatlands are estimated to hold one quarter of the carbon stored by the world's soils, yet approximately 780 000 hectares (1.9 million acres) are lost globally each year, in particular for palm oil cultivation. The researchers found that their protection could secure a store of 678 million tonnes of [carbon emissions](#) equivalent a year by 2030 - comparable to removing 145 million cars from the streets.

Dr. William H. Schlesinger, Professor Emeritus of Biogeochemistry and former president of the Cary Institute of Ecosystem Studies, said: "This study is the first attempt to estimate systematically the amount of carbon that might be sequestered from the atmosphere by various actions in forestry and agriculture, and by the preservation of natural lands which store carbon very efficiently. The results are provocative: first, because of the magnitude of potential [carbon](#) sequestration from nature, and second, because we need natural climate solutions in tandem with rapid fossil fuel emissions cuts to beat climate change."

Expanding Public and Private Sector Climate Action on Land

While the study highlights the potential of natural climate solutions as a major solution to climate change, renewable energy, energy efficiency and clean transport together receive about 30 times the investment .

Justin Adams, Global Lands Managing Director, The Nature

Conservancy, commented: "Just 38 out of 160 countries set specific targets for natural climate solutions at the Paris climate talks, amounting to 2 gigatonnes of emissions reductions. To put this in context, we need 11 gigatonnes of reductions if we are to keep global warming in check. Managing our lands better is absolutely key to beating [climate](#) change. The *PNAS* study shows us that those responsible for the lands - governments, the forestry companies and farms, the fishermen and property developers - are just as important to achieving this as the solar, wind and electric car businesses."

More information: Bronson W. Griscom et al., "Natural climate solutions," *PNAS* (2017).

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Provided by Nature Conservancy

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