EXPONENTIAL ROADMAP FOR NATURAL CLIMATE SOLUTIONS

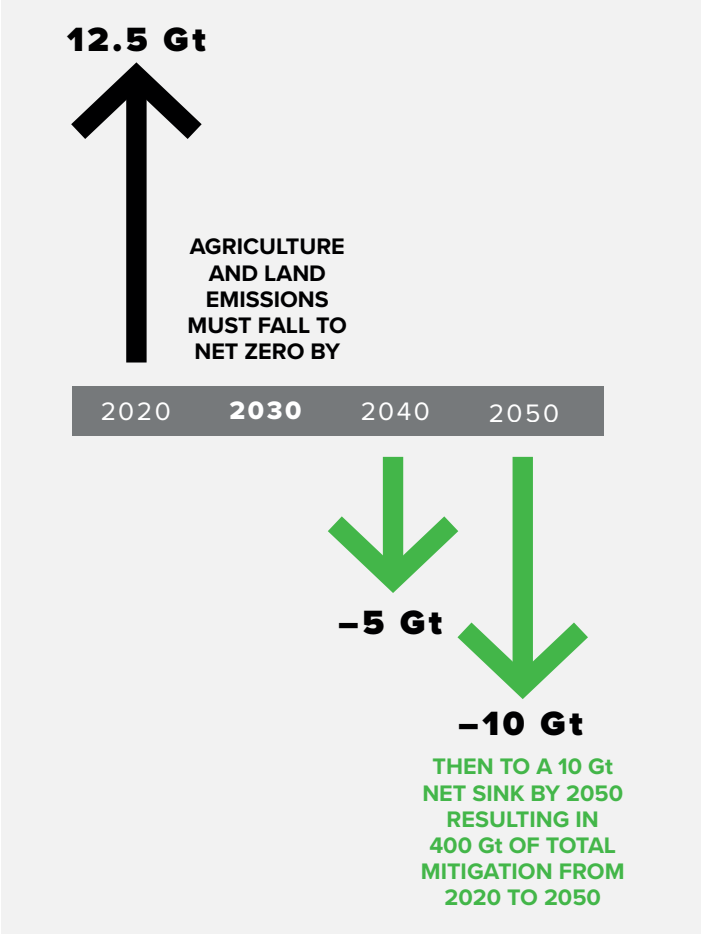
The Paris Agreement climate goals can only be achieved with rapid decarbonization of energy and industry, coupled with improved land stewardship actions known as natural climate solutions.

There is no viable path to limiting global temperature rise to 1.5°C or even 2°C without massive deployment of natural climate solutions – actions that increase carbon storage and/or avoid greenhouse gas emissions from forests, wetlands, grasslands, and agricultural lands. Though the importance and urgency of these solutions is well recognized, progress has been stalled by the lack of a comprehensive and coordinated strategy to scale them up across the globe. The Exponential Roadmap for Natural Climate Solutions is a first-of-its-kind plan to accelerate emissions reductions and boost natural carbon sinks through better stewardship of natural and working landscapes. With a focus on people who live and work on the land, the Roadmap charts the path and milestones that the world needs to follow to accelerate nature's contributions to climate mitigation in line with the Carbon Law for Nature.

A CARBON LAW FOR NATURE

The clarity and simplicity of the Carbon Law has helped to set humanity on a path to make the necessary rapid strides towards deep decarbonization of global energy and industry sectors. To similarly revolutionize how we collectively care for nature and land – growing carbon sinks and cutting emissions across the world's farms, ranches, forests, and natural lands – we introduce the Carbon Law for Nature. It's a simple, science-based benchmark derived from what the latest science tells us *needs* to be achieved by land and nature, and what land emissions accountants tell us *can* be achieved – what is possible and cost effective – to keep global temperature rise to no more than 1.5°C and safeguard our natural environment. If we achieve climate action on land at the scale called for by the Carbon Law for Nature, our chances of maintaining a safe climate – and a healthy and resilient biosphere overall – are greatly increased.

The Carbon Law for Nature requires that the land sector must reach net zero greenhouse gas emissions by 2030, a 5 Gt sink by 2040, and a 10 Gt sink by 2050 to keep global temperature rise to 1.5°C.

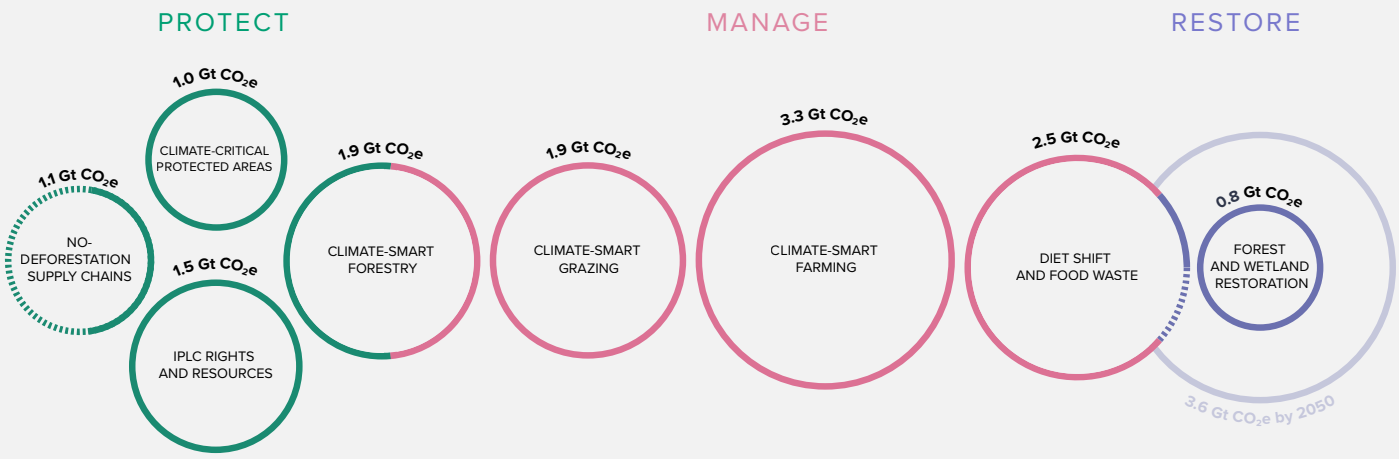


PEOPLE-CENTERED ACTION TRACKS

The Exponential Roadmap for Natural Climate Solutions shows how we can meet the Carbon Law for Nature by using existing technologies and the latest science to accelerate natural climate solutions. Routes to action in the Roadmap are organized around changes in the ways people interact with land, rather than changes in the amount of carbon in different types of land cover. As such, the Roadmap's eight Action Tracks are centered around people living and working on the land – primarily farmers, ranchers, foresters, Indigenous peoples and local communities, and public land managers – whose ability to steward land is supported by enabling actors: policymakers, the finance sector, businesses, and social movements. The Action Tracks group the interventions that will generate the greatest climate impact through stewardship of natural and working lands and are the most likely to scale.

Taken together, the Action Tracks will protect natural systems that are most at risk from agricultural expansion and other threats, rapidly scale climate-smart management of working lands within the decade, and begin to restore natural ecosystems through the emergence of a new global restoration sector. And together, they are the world's route to achieving the Carbon Law for Nature.

The effort needed to deliver natural climate solutions at scale is enormous and requires us all – through solutions delivered by people on the land and supported by public and private enabling actors.



No-Deforestation Supply Chains

Supply chains can send signals to farmers and ranchers, plus the companies and governments that enable their activities, that deforestation will put prices and market access at risk.

Climate-Critical Protected Areas

High-carbon ecosystems, with "irrecoverable" carbon that is quickly released when disturbed and will not recover for decades if lost, are high priorities for protection.

IPLC Rights and Resources

Legal recognition of IPLC lands and rights globally, and financial, political, technological, and legal resources to support Indigenous people and local communities in exercising their rights are critical.

Climate-Smart Forestry

Better management of working forests can reduce emissions and increase carbon sequestration in production areas, while increasing their perceived value can also protect them from deforestation.

Climate-Smart Grazing

Adding trees to grazing areas and taking more care with soil and fodder holds great potential for emissions reductions while improving animal health and creating new economic opportunities for livestock managers.

Climate-Smart Farming

Soil and cover crop management, agroforestry, and other regenerative farming techniques can dramatically increase carbon sequestration, while increasing biodiversity and resilience to climate risks.

Diet Shift and Food Waste

In richer countries, diets must shift toward an emphasis on more plant-based foods, while food loss and waste must be reduced everywhere.

Forest and Wetland Restoration

Passive and active reforestation provides benefits for decades and must not be delayed. Restoring wetlands – especially peatlands – can also provide significant and rapid returns.

ACCELERATING ACTIONS

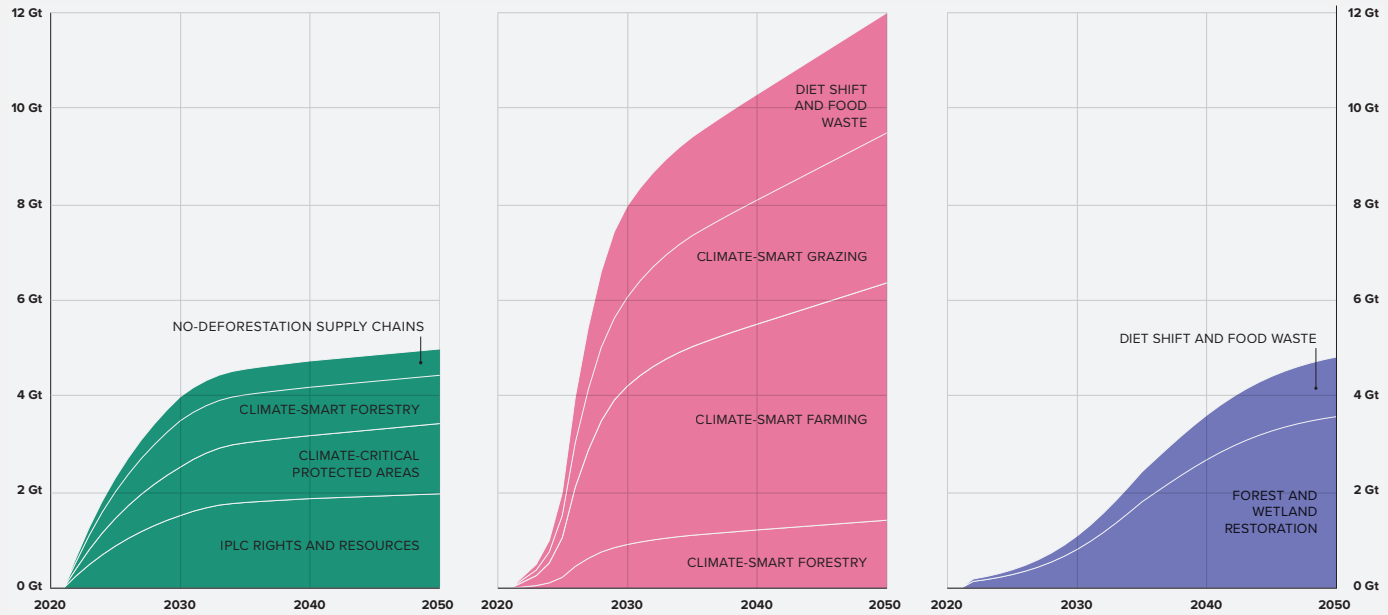
The Roadmap's mitigation trajectories plot out how quickly we need to accelerate cost-effective natural climate solutions over time to meet the Carbon Law for Nature. The trajectories are guided by a long-standing natural resource decision-making framework – the mitigation hierarchy – that prioritizes mitigation of environmental harms: first avoid negative impacts; second minimize unavoidable negative impacts; and finally remediate or compensate for the negative impacts that remain.

Overall, the Roadmap shows where and how we can foster scientific innovation and large-scale deployment of natural climate solutions to support the people on the ground who will deliver the required nature transition. Its creation is a critical step towards providing communities with resources to support land stewardship, countries with the knowledge to identify and activate the climate potential of their domains, and companies and financiers with clear paths to invest in solutions. This must occur so that the massive potential of natural climate solutions can deliver on the Carbon Law for Nature: providing us all with a stable climate while maintaining biodiversity, delivering clean air and water, sustaining human health and well-being, and fortifying the resilience of our biosphere.

We must protect natural systems that are most at risk, halving emissions from ecosystem loss every five years for the next decade to protect 45 million hectares of forests and wetlands and deliver 4 Gt of mitigation annually by 2030.

We must double the use of climate-smart management every year through 2026, reaching over two billion hectares by 2030 – 20% of the world's working lands – to achieve 8 Gt of mitigation annually and net-zero emissions by 2030.

Starting to restore natural ecosystems now is crucial. To remove and sequester nearly 5 Gt of CO_2 annually by 2050 requires a new global restoration sector to emerge, restoring at least 350 million hectares of forests and wetlands by 2050.



Protect

In the realm of natural climate solutions, "protection" refers to **actions that avoid emissions from conversion** of forests, grasslands, or wetlands, or from changing wetland hydrology.

Manage

Natural climate solutions in the "improved management" category **reduce emissions from working agricultural, grazing and forest lands** and can also **regenerate and enhance carbon stores**, without a change in land use and while delivering the food and materials we need. If the same land is used to graze livestock (or grow crops, or harvest trees) after the implementation of a natural climate solution, then we put it in the "manage" category.

Restore

These natural climate solutions **restore native forests, wetlands and grasslands cover in places where they historically occurred**. In this Roadmap we use restoration narrowly to describe the recovery of an ecosystem that had previously been converted to working land. In other uses, restoration can also describe actions to recover existing degraded ecosystems or to improve the health of working lands, which we include in the Roadmap as "manage" mitigation.

Food Systems

Agriculture is the world's largest cause of ecosystem loss and associated emissions. In total, the global food system is currently responsible for about 27% of all greenhouse gas emissions. If our food production and consumption choices don't collectively change in the coming decade, we give up any real chance of limiting global temperature increase to no more than 1.5°C, or stemming the tide of deforestation and biodiversity loss.

The biggest and most cost-effective opportunities for reducing emissions and removing carbon from the atmosphere through natural climate solutions all directly involve food production systems: soil management practices, introducing trees in croplands and grazing lands, and releasing unsuitable grazing lands for restoration to forest. Overall, more than 80% of the 2030 mitigation from following the Roadmap is tightly linked to food systems.

A transformation of food systems is at the heart of natural climate solutions and is necessary to achieve most of the needed protection, climate-smart management, and ecosystem restoration, while enhancing global food security.

CONSERVATION INTERNATIONAL

For more information on the Exponential Roadmap for Natural Climate Solutions:

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Partners

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