

Technical Note

Protected and conserved areas are irreplaceable tools for meeting linked targets on biodiversity and climate

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Key message

Focusing on the development and management of protected and conserved areas in National Biodiversity Strategies and Action Plans and in plans for Nationally Determined Contributions offers cost-effective, win-win options for governments.

The only practical solution to climate change is to reduce carbon dioxide and other greenhouse gas levels in the atmosphere.¹ While cutting fossil fuel use remains the top priority, around a quarter of human-caused greenhouse gas emissions come from land use change,² especially deforestation³ and forest degradation,⁴ and from land use change in grasslands,⁵ desertification,⁶ and damage to marine⁷ and wetland⁸ ecosystems, particularly peatlands.⁹ **We need strategies to protect carbon sinks and allow nature to sequester carbon** as a critical, front-line response to climate change.¹⁰

Natural ecosystems already contain huge carbon stores and it is imperative that these are retained in good condition.¹¹ Most natural ecosystems can continue to sequester carbon in the long-term, by building up stores in wood, soil, peat or marine sediments,^{12,13,14} so that carbon stores continue to increase. Intact ecosystems (i.e. those that have high integrity with minimal human industrial activity),¹⁵ are also more resilient to pressures and changes, including climate change, thus maximising their chances of continuing these critical ecosystem services over time.¹⁶ **Actions that conserve or restore ecosystems simultaneously provide important benefits to mitigation of and adaptation to climate change.**¹⁷

Furthermore, **maintaining existing carbon stores within intact ecosystems is a more effective climate mitigation strategy than relying on carbon sequestration through vegetation planting or carbon capture technologies.**¹⁸ Indeed, many carbon-related tree planting schemes take decades or longer to show a net gain in carbon; ploughing land releases carbon, and wood and fibre used in short life products often only provides a temporary carbon store.^{19,20,21} Carbon capture technologies²² are largely unproven, expensive and unlikely to have a meaningful impact on global climate quickly enough. The

World Resources Institute calculates that if all current and planned Carbon Capture, Utilisation and Sequestration (CCUS) schemes were operational, they would only capture 0.7% of greenhouse gas emissions.²³ In contrast, ocean and land ecosystems remove ~ 50% of anthropogenic CO₂ emissions from the atmosphere each year.²⁴

Unfortunately, the extent and integrity of most ecosystems continues to decline steeply due to pressure from agriculture, grazing, industrial development, urbanisation, transport infrastructure, and increasingly, as a result of climate change itself.^{25,26} As a consequence, many globally important carbon stores are at risk, as is their ability to absorb atmospheric emissions. Yet not everywhere. **Protected and conserved areas (protected areas and other effective area-based conservation measures or OECMs), when well resourced, are proven, long-term tools for conserving functioning nature.**^{27,28} A recent analysis showed that protected and conserved areas held more than a quarter of all carbon found in terrestrial ecosystems in addition to their role in biodiversity conservation.²⁹ Carefully designed protected and conserved areas also play critical roles in disaster risk reduction such as control of floods^{30,31,32} and desertification,³³ water security³⁴ and food security, including conservation of wild fish stocks,³⁵ amongst other values.³⁶

Protected and conserved areas have been developed to conserve biodiversity; their parallel role in addressing climate change challenges has been recognised more recently and is not as well known to politicians or civil society.

There are five key ways in which protected and conserved areas contribute to climate change strategies. They:

1. Maintain and enhance existing carbon stores, including those containing “irrecoverable carbon”,³⁷ and other ecosystem services.^{38,39,40,41} (supports Kunming-Montreal Global Biodiversity Framework (GBF) Target 8)
2. Ensure that intact, functioning ecosystems remain intact so they are as resilient as possible in the face of pressures and changes, including climate change.⁴² (supports GBF Target 1 and 3)
3. Provide ideal conditions to further enhance these benefits through carefully planned restoration, where this is needed.⁴³ (Supports GBF Targets 2)
4. Ensure diverse ecosystems are secure, to provide the widest range of ecosystem services,⁴⁴ supporting human well-being,⁴⁵ including to help human populations adapt to climate change.
5. Protect specific species that play important ecological engineering roles, such as maintaining nutrient pathways, supporting carbon sequestration or rebuilding soil.^{46,47,48} (Supports GBF Target 4)

Maintaining existing carbon stores and ecosystem services in protected and conserved areas is always a cheaper option than developing artificial replacements. It is also cheaper and more effective to conserve ecosystems than to restore them.^{49,50} Cheaper but not free;

governments need to invest in protected and conserved area networks to ensure effective delivery of both biodiversity conservation and climate mitigation and adaptation. Maintaining and expanding protected and conserved areas are, therefore, frequently the “least regret” option, providing multiple benefits in addition to biodiversity protection and climate mitigation.⁵¹

Nations are already revising their National Biodiversity Strategies and Action Plans (NBSAPs) in response to decisions in the GBF from the Convention on Biological Diversity (CBD), and at the same time drawing up plans for Nationally Determined Contributions (NDCs) for the UN Framework Convention on Climate Change (UNFCCC). Protected and conserved areas can support NBSAPs and NDCs. Key ways in which their values can be realised and increased include:

- Improving political and financial support for protected area establishment and management.
- Improving management effectiveness in existing protected areas.
- Expanding area-based conservation through designation of new protected areas and recognition of OECMs, especially in areas that are important for biodiversity⁵² and carbon.⁵³
- Working with partners, including local rightsholders and stakeholders, to value and support the resulting ecosystem services.

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