

On 14 April 2023, the CBD Secretariat issued a [call for contributions](#) on “Biodiversity and climate” to inform the process that guides the future work of the CBD. The GRA Secretariat prepared the below paper that was submitted on 25 May 2023 and co-signed by 12 members of the GRA.

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**Submission of views and information on biodiversity and climate change
(Ref.: SCBD/SSSF/JL/SK/TT/AC/90960)**

Dear Mr. Cooper,

We, the undersigned, representing the [Global Rewilding Alliance \(GRA\)](#), a network of more than 140 organizations working on all continents to protect and rewild 100+ million hectares of land and sea in 90+ countries, hereby submit our perspective and some substantial new information on the critical importance of integrating biodiversity conservation and climate change action in order to facilitate more effective action to solve these interlinked crises simultaneously.

Our submission is anchored in the scientific work undertaken during the past several years by academic institutions across the world, but especially during the last two years, under the leadership of [Professor Oswald J. Schmitz at the Yale School of the Environment](#), and as a collaborative effort in partnership with the GRA.

To start with, we will reflect on the importance of rewilding of nature in the context of the UNFCCC, and especially the latest conclusions and recommendations of the IPCC. Secondly, we will put this new knowledge and research into the perspective of the CBD and the different decisions taken as reflected by this invitation, with a set of recommendations for consideration by the SBSTTA.

This letter relates to the recently launched [Action Plan for the UN Decade on Ecosystem Restoration, 2021-2030](#), with our work on “Animation of the carbon cycle through rewilding as Nature-based Climate Solution” included under the *Restoration Challenge - Climate*.

Rewilding of nature and climate in the perspective of IPCC conclusions & recommendations

On 20th of March 2023, the Intergovernmental Panel on Climate Change (IPCC) released its latest [AR6 Synthesis Report: Climate Change 2023](#) on the current and future state of the Earth's climate. The report had a rather dire message: we are unlikely to achieve the goals of the Paris Climate Agreement of cutting in half greenhouse gas emissions from all sectors by 2030, let alone reaching net zero emissions by 2050. This failure means that we are headed toward surpassing a global mean temperature rise of 1.5°C and facing a hotter, drier, and stormier world. But the report tempers that message by stating that it is not too late. If we act now, and act fast, we can still change course.

Acting now and fast means reducing annual emissions by billions of tons of CO₂-equivalent (GtCO₂-eq) between now and mid-century. IPCC's top 5 options for reducing net emission expeditiously and the amounts of reductions they buy us are (in order of importance):

- (1) Rapid transitioning to solar energy generation (4.5 GtCO₂-eq/yr)
- (2) Reducing the conversion of natural ecosystems (4.0 GtCO₂-eq/yr)
- (3) Rapid transitioning to wind energy generation (3.9 GtCO₂-eq/yr)
- (4) Enhancing carbon capture and storage in agriculture (3.5 GtCO₂-eq/yr); and
- (5) Restoring, afforesting, and reforesting ecosystems (2.8 GtCO₂-eq/yr).

The report further states that we should look for “comprehensive, effective, and innovative responses” that “can harness synergies and reduce trade-offs between adaptation and mitigation”.

The report further acknowledges the importance of simultaneously maintaining the adaptability and resilience of nature's species and ecosystem functions and services by ensuring “effective and equitable conservation of approximately 30% to 50% of Earth's land, freshwater and ocean areas”. The need to safeguard nature as part of climate action is certainly needed to sustain society into the future. But we can do even better by enlisting nature to help us mitigate climate change more quickly.

On March 27th, 2023, a group of 15 scientists (3 from the GRA) from 8 countries released a report describing a new way to mobilize nature to help us mitigate climate change. The [article](#) (*Annex 1*), entitled “Trophic rewilding can expand natural climate solutions”, published in the leading journal *Nature Climate Change*, describes how rewilding (protecting and enhancing) populations of key wildlife species across the world could further reduce emissions by billions of tons annually. And the amount of reduction rivals each of the IPCC top 5.

Rewilding animal populations to enhance natural carbon capture and storage is known as “[Animating the carbon cycle](#)” (ACC). We make the case that it is probably among the best and most cost-effective nature-based climate solutions available to humankind as ACC addresses simultaneously the twin challenges of mitigating biodiversity loss and climate change. This is because, as we show, wild animal populations play critical roles in controlling the carbon cycle in terrestrial, freshwater, and marine ecosystems through a wide range of processes. We present

data showing that protecting or restoring populations of nine wildlife species (or groups of species) - marine fish, whales, sharks, Grey Wolf, Wildebeest, Sea Otter, Musk Ox, African Forest Elephant, and American Bison - could collectively facilitate the capture of 6.4 billion tons of carbon dioxide (GtCO₂) annually. This is more than 95% of the amount needed every year (6.5 GtCO₂) to meet the global target of removing 500 GtCO₂ from the atmosphere by 2100, which would keep global warming below the 1.5°C threshold.

The article outlines the value to climate mitigation not only for protecting the functioning of wild nature we have left, but enabling degraded ecosystems to return to full health through [trophic rewilding](#) at scale. And, with the right enabling conditions, evidence shows that this can be done within the urgent timeline set by the IPCC. There is potential to do even more when considering the potential of many other candidate wildlife species identified in the article (e.g., caribou, African Buffalo, zebras, White Rhino, Puma, Dingo, Old & New world primates, tapirs, hornbills, fruit bats, dolphins, seals, marine turtles, and tortoises).

What is the significance of these findings in the context of this latest IPCC report? Here are some initial conclusions:

- The ACC perspective, and how wildlife species could significantly enhance carbon sinks across ecosystems, is not at all considered by the IPCC.
- The potential capture and storage of 6.4 GtCO₂ annually that comes from protecting and restoring populations of these nine species/species groups is comparable to the potential emissions reductions from solar, wind, and carbon sequestration in agriculture.
- Implementing an ACC approach along with IPCC's ecosystem protection and restoration measures could double the emissions reduction mentioned in the IPCC report (2.8-4.0 GtCO₂-eq/yr).
- Marine fish, especially, play a very significant role in facilitating the capture and storage of 5.5 GtCO₂/yr. The importance of this part of the carbon cycle is in danger of being seriously neglected. We need to look beyond the IPCC conclusion that simply "rebuilding overexploited or depleted fisheries reduces negative climate change impacts on fisheries". Global fisheries management must take urgent responsibility to avoid negatively impacting the climate and the overall functioning and diversity of the ocean by rebuilding depleted fish stocks and implementing large no-take fishing zones both in territorial and High Seas areas. Beyond protecting what still remains, actively rebuilding global ocean ecosystems can help draw down vast amounts of carbon.
- With its holistic ecosystem-based, functional biodiversity approach, ACC through rewilding is a prime example of how to achieve synergy between climate mitigation and adaptation, and biodiversity conservation.

ACC/rewilding in the context of CBD

We much welcome the previous decisions and recommendations since 2004, such as:

- "Ensuring the integrity of all ecosystems, including oceans" ([XIII/4](#))
- Promoting the "ecosystem-based approach" ([VII/15](#), [IX/16](#), [X/33](#), [XII/20](#), [XIII/4](#), [14/5](#))

- Highlighting the importance of “ecosystem services” ([X/33](#))
- The need for reducing “non-climate stresses”, such as pollution, over-exploitation, habitat loss and fragmentation, and invasive species ([X/33](#))
- Strengthening protected area networks, connectivity, and restoration of degraded habitats and landscapes ([X/33](#), [XIII/4](#))
- Recognizing the need for a synergistic approach across different international treaties and agreements, including CBD, UNFCCC, UNCCD, Ramsar Convention, CMS, and World Heritage Convention ([VII/15](#), [IX/16](#))
- Highlighting the importance of creating synergies between climate change adaptation and mitigation measures ([XIII/4](#))
- Promoting the involvement of local communities and indigenous peoples ([IX/16](#), [X/33](#), [XIII/4](#)), and
- The recognition that “ecosystem functions” significantly “contribute to climate change adaptation, mitigation and disaster risk reduction” ([X/33](#), [14/5](#)).

Evident from the listed decisions is that a major focus of the CBD (and IPCC), so far, has been on forests ([IX/16](#), [XI/19](#), [XII/20](#), [XIII/4](#)), although the need for protecting and restoring grasslands, peatlands, mangroves, salt marshes, kelp forests, and seagrass beds is also referred to ([X/33](#)). A major focus has also been on climate adaptation and disaster risk reduction ([XII/20](#), [XIII/4](#)), and, to that end, “*Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction*” have been published, recognizing that such measures “may also jointly contribute to climate change mitigation” ([14/5](#)).

A key aspect of ecosystem restoration is to protect and enhance ecosystem functions and services - their **ecological integrity**. This was recently highlighted by the CBD in the landmark “[Kunming-Montreal Global Biodiversity Framework](#)” agreement adopted in December 2022 in Montreal. Two of the goals (A & B) and four of the targets (# 1,2,3 & 8) explicitly identify ecosystem functioning, resilience, and the protection of ecological integrity as key aspects of protection and restoration, reaching “near zero loss” of biodiversity, and increased climate resilience.

[Rewilding](#) is precisely about that. It restores ecosystems - or the web of life - to the point where nature can take care of itself. At the same time, rewilding restores our relationship with the natural world; creating space where nature and people can thrive in harmony.

Rewilding helps to alleviate some of society’s most pressing challenges. For example, [animating the carbon cycle](#) through [trophic rewilding](#) serves as one of the most powerful [nature-based climate solutions](#) available to humankind.

In perspective of the different analyses, decisions and recommendations coming out of the CBD biodiversity/climate change process since 2004 and the information provided on rewilding/ACC in the first part of this contribution (*Rewilding of nature and climate in the perspective of IPCC conclusions & recommendations*), we have decided to highlight the following important aspects for future work on biodiversity and climate change under CBD:

- Put a much stronger emphasis on maintaining and restoring ecological functionality through protection of intact systems and rewilding, with a particular emphasis on wildlife conservation and comeback.
- A key lever of positive change for biodiversity and climate mitigation/adaptation is to protect and rebuild the populations of key wildlife species, enabling them through trophic rewilding to Animate the Carbon Cycle.
- The ACC concept requires abandoning a static understanding of conservation and nature-based climate solutions, such as forest plantations, and replacing it with dynamic landscapes and seascapes, which enable wild animal species to reach meaningful densities through a conservation strategy - trophic rewilding - that aims to repair natural food webs.
- There is also a big advantage in focusing on long-lived species, like those wildlife groups studied in the above referenced [paper](#) with average longevity between 20 and 200 years. This will ensure very significant net carbon removal contributions until the end of the century if the species are protected. If not, these ecosystems could flip from being carbon sinks to sources.
- It is essential to look at ecosystems and animal species beyond forests. We make a strong plea for including open ocean ecosystems, such as the Twilight/Mesopelagic Zone (*Figure 1*), and species such as marine fish, sharks, cetaceans, seals, Sea Otter, and sea turtles.
- The recent commitments to protect [30% of land, freshwater, and sea](#) (including [High Seas](#)) by 2030 can serve as a key, powerful basis for implementing ACC at ecologically and climatically significant spatial scales.
- Animating the carbon cycle need not be restricted to protected areas or the most intact parts of the world's natural areas, either. It can also work in areas with human populations. Hundreds of initiatives within the [Global Rewilding Alliance](#), for example, are working closely with local populations across the world to help them enhance their livelihoods through rewilding, building on local cultural heritage and ancestral knowledge, and creating novel forms of land tenure and local economic opportunities.
- With the [UN BBNJ Treaty](#) finally in place and the “[Kunming-Montreal Global Biodiversity Framework](#)” agreement at COP15, there is now a unique opportunity to address the conservation of biodiversity of the whole planet and to optimize the synergy with the global climate agenda of the UNFCCC.

Conclusions

Through ACC, rewilding serves as a prime example of a systemic solution to several interlinked systemic problems. By taking key wildlife species and the ACC potential into account, the time has come for a paradigm shift in how we mobilize nature for the benefit of climate and society - an approach that also will help to strengthen the functioning of nature, secure other ecosystem services, reduce the global loss of biodiversity, and meet political commitments when it comes to the UN Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), the new UN Treaty on Marine Biodiversity of Areas Beyond National Jurisdiction, and the UN Sustainable Development Goals (SDGs).

The time has come to embrace a holistic, integrated, and functional systems perspective that explicitly includes biodiversity – especially animal diversity – and the interlinkages with ecosystem carbon cycling and climate change. The sustainability of the planet, more than ever, depends on such integration. The recent commitments to protect [30% of land, freshwater, and sea](#) (including [High Seas](#)) by 2030 can serve as a key basis for implementing ACC at ecologically relevant spatial scales. Including ACC as a nature-based climate solution could help humanity meet the target of halving its GHG emissions by 2030.

Considering that only around 3% of [land](#) and [sea](#) has been estimated to still be ecologically functional, the [95% drop in wildlife populations](#) on average since 1970, and that less than [2% of the biomass of all land-living mammals today consists of wildlife](#) (the rest: livestock 60% & humans 38%), this level of degradation of the planet must have contributed much more to decarbonizing the biosphere than we currently know. No less than a large-scale rewilding approach is required for maintaining and restoring biodiversity. Animating the Carbon Cycle through trophic rewilding would provide the catalytic mechanism urgently needed for reducing the risks of a climate meltdown.

We, the undersigned institutions, therefore call for the protection and restoration of wildlife populations linked to trophic rewilding to be included in the scope of [nature-based climate solutions](#) - solutions which help nature to lock up carbon and adapt to climate change - to be addressed by the Convention on Biological Diversity in partnership with the UNFCCC and other institutions.

We, together with the scientific community addressing the scope of ACC, are at your disposal to help develop a new, forward-looking, and integrated approach to scale up the necessary biodiversity/climate interface through trophic rewilding for a better and more stable Planet Earth.

With kind regards,

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