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Viewing biodiversity and climate change as related issues

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Climate change is one of humanity's greatest challenges, and its effects can already be felt in many parts of the world today. But we are only now beginning to understand systemic tipping points and their feedback effects on ecosystems. It is clear that the diversity of all species of flora and fauna and ecosystems, i.e. biodiversity, plays a fundamental role in climate change mitigation and adaptation. Without intact ecosystems, we cannot counter climate change. However, they are being destroyed even faster than the rate of climate change.

Moreover, if we cannot reverse the trends leading to the loss of biodiversity, we will not be able to achieve 80% of the Sustainable Development Goals. Three quarters of terrestrial and two thirds of marine ecosystems have already been significantly degraded or destroyed. Between 2015 and 2020, the rate of deforestation was estimated at 10 million hectares, which is equivalent to the size of Iceland. And those are just two examples; the list goes on and on.

Climate change threatens ecosystems

Changes in land use and fishery are the main drivers of species loss and ecosystem destruction. But climate change has since become the second largest threat. According to the Intergovernmental Panel on Climate Change, the arctic regions and coral reefs in particular are already threatened by an average temperature increase of 2°C. But other regions and ecosystems like the tropical forests (e.g. the Amazon), boreal tundra, coastal wetlands and freshwater ecosystems are particularly vulnerable as well.

Ecosystems as sinks

The loss of biological diversity in ecosystems reduces their resilience and leads to a reduction in the systems' carbon storage. But this sink function is vital to achieving the climate objectives in the Paris Agreement. Because we will not be able to completely eliminate carbon emissions, even in the future. Residual emissions need to be compensated by capturing an equal amount of carbon. Over two thirds of greenhouse gases produced by humans are sequestered in moors, forests and oceans in particular. Technological solutions for filtering and storing carbon will not be able to sequester enough carbon in the long term.

Which is why conservation or renaturation of climate stabilisation areas with high potential for storing carbon are all the more important. As well as moors and forests, these also include floodplains, mangroves, tundra, savannahs and grasslands, in particular. Due to their genetic diversity, intact ecosystems also demonstrate higher adaptability in the face of climate change.

Nature-based solutions

Nature-based Solutions (NbS) as an answer to man-made environmental impacts focus on ecosystem conservation and preservation of these systems' capacities. As defined by the International Union for Conservation of Nature (IUCN), this explicitly includes systems used by humans and those changed by human land use. Using systematic approaches, NbS lead to diverse co-benefits for health, economies, societies and for the environment. These approaches are particularly interesting from a climate-action perspective because they use synergies between reduction and adaptation. In addition to the sink function of forests, further examples include restoring coastal ecosystems to protect people from increasing storm intensity and frequency. Protection and restoration of wetlands as a buffer for droughts and floods are also examples, as is the use of shade trees in coffee plantations due to increasing temperatures. These approaches are often more efficient and cost-effective than comparable "technical" alternatives.

Source: Ensuring Effective Nature-based Solutions (IUCN 2016)

However, nature-based approaches are usually space-intensive and not infinitely scalable. And their success is dependent on acceptance by the local population, so participation and transparency are crucial. The greatest challenge often lies in the associated regulation of access to resources. Promoting sustainable resource use can help to increase user group support for nature-based approaches.

Conclusion

Climate change is a major co-contributor to the global biodiversity crisis. At the same time, preserving biodiversity and healthy ecosystems is a key element in combating climate change and mitigating its effects.■