# [***How to combat climate change and biodiversity loss***](https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:682N-CM81-JCG7-83X7-00000-00&context=1516831)

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**Body**

A new review study by an international team of researchers offers new solutions to combat climate change and unprecedented ***biodiversity*** ***loss*** on the basis that the two crises must be addressed in an interlinked manner. "Earth's ***biodiversity*** and human societies face **pollution**, **overexploitation of natural resources**, **rampant urbanization**, **demographic crises**, **social and economic inequalities**, and ***loss* of habitats and ecosystems**, many of which are exacerbated by **climate change**.

They conclude that there are **solutions within our reach** that provide **co-benefits in all sectors** and should be distributed equally. The **growing scientific evidence** points to an urgent need to prioritize the **protection of carbon-rich environments and animal and plant species** that have yet to avoid human-induced environmental alteration and to implement **specific restoration projects** focused on maintaining ***biodiversity***.

The researchers have conducted a meta-analysis published in the dean of science journal, **Science**, in which they review the links between climate, ***biodiversity*** and society and develop a roadmap to **sustainability**: These include **limiting warming to 1.5 °C** and effectively **conserving and restoring** functional ecosystems in **30% to 50% of terrestrial, freshwater and oceanic "landscapes."** "  **Climate, *biodiversity* and societal challenges are intertwined**, but are often treated as singular problems.

"The climate crisis is probably the **greatest challenge Homo sapiens has faced** in its 300,000-year history," says Hans-Otto Pörtner, head of the Integrative Ecophysiology Section at the Alfred Wegener Institute, Helmholtz Centre for Marine and Polar Research, in Bremerhaven, Germany, and head of the international team that published the paper.

"But at the same time, another equally dangerous crisis is occurring that is often overlooked: the dramatic ***loss* of plant and animal species** across the planet. Both climate and ***biodiversity*** catastrophes are interdependent and mutually amplifying, so they **should never be seen as two separate things**," they point out: **there is no point in undertaking isolated initiatives that do not have both approaches as their ultimate focus**. "Our review study shows in detail the **connections between the climate crisis and the *biodiversity* crisis** and presents solutions to address both catastrophes and mitigate their already dramatic societal impact," it notes.

The researchers propose **three critical goals** for future land and marine spatial planning that include a **livable climate**, **self-sustaining *biodiversity***, and a **sustainable supply of natural resources** people to support development and social well-being. " **Coordinated efforts between science and policy** can identify and develop the climate resilience on which both human society and for ***biodiversity*** depend."

Experts envision a mosaic of **interconnected protected and shared spaces**, including intensively used spaces - such as cities - to **strengthen** self-sustaining ***biodiversity***, the evolving adaptive capacity of people and nature, and mitigate climate change. "Fostering **interlinked human, ecosystem and planetary health** to achieve a livable future requires urgent and bold transformative policy interventions through interconnected institutions, governance and social systems **from the local to the global** level," they note.

The study in which 18 international experts have collaborated is the result of a virtual scientific workshop held in December 2020, attended by 62 researchers from 35 countries, jointly coordinated by two organizations belonging to the United Nations: the Intergovernmental Science-Policy Platform on ***Biodiversity*** and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC), reports Europa Press. Hans-Otto Pörtner has been lead author of several assessment reports and special reports for the IPCC and, since 2015, co-chairs its Working Group II, which is tasked with assessing the current state of knowledge on the impacts of global warming.

**Combating the sixth mass extinction**

Experts describe the rapidly worsening ***loss*** of species: human activity has altered approximately 75% of our planet's land surface and 66% of its marine waters: **80% of mammal biomass and 50% of plant biomass have** already been **lost**, while more species are at risk of extinction than at any other time in human history, which in scientific terms has already been described as the sixth mass extinction

In this sense, global warming and the destruction of natural habitats not only lead to ***biodiversity*** ***loss***, but also reduce the **ability of organisms, soils and sediments to store carbon**, which in turn aggravates the climate crisis. "Because each organism has a certain range of tolerance to changes in its environmental conditions (e.g., temperature), global warming is also causing species' habitats to shift."

Mobile species follow their temperature range and migrate poleward, to higher elevations (on land, mountain ranges) or to greater depths (in the ocean). **Sessile organisms**, such as corals, can only change their habitats very gradually, over generations: as such, they are caught in a temperature trap, which means that large coral reefs could, in the long term, disappear altogether.

And **mobile species** could also encounter climatic dead ends on mountaintops, the coasts of continental landmasses and islands, at the poles and in the deep ocean, if they no longer find any habitats with suitable temperatures to colonize.

**How to approach green policies**

To address these multiple crises, the researchers propose an ambitious combination of **emission reduction** measures **, restoration and protection, smart land-use management, and fostering inter-institutional competencies** among policy actors.

"It goes without saying that a massive reduction in greenhouse gas emissions and achieving the 1.5 degree target are still at the top of the list of priorities," says Hans-Otto Pörtner. "In addition, at least 30% of all terrestrial, freshwater and marine areas must be protected or restored to avoid major ***biodiversity*** ***losses*** and preserve the functioning capacity of natural ecosystems."

This, in turn, will help us combat climate change," he says. For example, extensive restoration of just **15% of the areas converted for agricultural and livestock use** could be sufficient to **prevent 60% of predicted extinction events**. It would also allow the long-term removal and fixation of up to 300 gigatons of carbon dioxide from the atmosphere, equivalent to **12% of all carbon emitted since the dawn of the industrial era**," he says.

**Protected ecosystems must not be isolated**

In addition, the authors of the study advocate a **sustainable approach to land-use management**, in which protected areas are **not seen as isolated refuges of *biodiversity***.

On the contrary, they propose a **global network, both terrestrial and marine**, interconnecting relatively pristine regions through **migratory corridors for the different species** that inhabit the planet.

In this regard, **indigenous peoples and local communities** in particular should receive **institutional and economic support** for their efforts to protect and restore nature. When it comes to regions dedicated to **intensive agriculture and fishing**, the focus must be on **sustainability**. "With the help of modern concepts, both resource-preserving forms of use and a reliable food supply for the human race must be ensured," they continue.

In this regard, they recommend that priority should be given to concepts that lead to intensified carbon dioxide sequestration and carbon fixation in biomass and soils. In addition, sufficient refuges should be created for species that make harvesting possible, such as **insects that pollinate fruit trees**. Finally, improving the carbon dioxide balance must be the top priority in cities.

"In the future, all this will only work if - for all approved measures - climate protection, preservation of ***biodiversity*** and social benefits for local communities are pursued simultaneously," says Pörtner. It is unlikely that we will achieve the new global ***biodiversity***, climate and sustainability targets set for 2030 and 2050 without **strong institutional will**," he says. Take the UN conventions on ***biodiversity*** and climate protection, i.e. the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change, for example." In this regard, he warns that "they address the two crises separately and also focus on the national interests of the parties to the conventions. We urgently need a global approach if we still hope to achieve the goals.

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