Tackling Biodiversity and Climate Crises Together and Their Combined Social Impacts

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Global Experts Identify Key Options for Solutions

First-Ever Collaboration between IPBES and IPCC Selected Scientists

Unprecedented changes in climate and biodiversity, driven by human activities, have combined and increasingly threaten nature, human lives, livelihoods and well-being around the world. Biodiversity loss and climate change are both driven by human economic activities and mutually reinforce each other. Neither will be successfully resolved unless both are tackled together. This is the message of a workshop report, published today by 50 of the world’s leading biodiversity and climate experts.

The peer-reviewed workshop report is the product of a four-day virtual workshop between experts selected by a 12-person Scientific Steering Committee assembled by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) - the first-ever collaboration between these two intergovernmental bodies.

The report finds that previous policies have largely tackled biodiversity loss and climate change independently of each other, and that addressing the synergies between mitigating biodiversity loss and climate change, while considering their social impacts, offers the opportunity to maximize benefits and meet global development goals.

The authors also warn that narrowly-focused actions to combat climate change can directly and indirectly harm nature and vice-versa, but many measures exist that can make significant positive contributions in both areas.

Among the most important available actions identified in the report are:

- Stopping the loss and degradation of carbon- and species-rich ecosystems on land and in the ocean, especially forests, wetlands such as peatlands, grasslands, coastal ecosystems such as mangroves, salt marshes, kelp forests and seagrass meadows; as well as deep water and polar blue carbon habitats. The report highlights that reducing
Deforestation and forest degradation can contribute to lowering human-caused greenhouse gas emissions, by a wide range from 0.4-5.8 gigatonnes of carbon dioxide equivalent every year.

- Restoring carbon- and species-rich ecosystems. The authors point to evidence that restoration is among the cheapest and quickest nature-based climate mitigation measures to implement – offering much-needed habitat for plants and animals, thus enhancing resilience of biodiversity in the face of climate change, with many other benefits such as flood regulation, coastal protection, enhanced water quality, reduced soil erosion and ensuring pollination.

- Increasing sustainable agricultural and forestry practices to improve the capacity to adapt to climate change, enhance biodiversity, increase carbon storage and reduce emissions. These include measures such as diversification of planted crop and forest species, agroforestry and agroecology.

- Enhancing and better-targeting conservation actions, coordinated with and supported by strong climate adaptation and innovation. Protected areas currently represent about 15% of land and 7.5% of the ocean. Positive outcomes are expected from substantially increasing intact and effectively protected areas.

Reports’ key messages related to wetlands:

- Extinction risks are highest on island-like biodiversity hotspots such as mountains, islands, coral reefs and coastal embayment, or fragments of formerly more extensive habitats, now separated by altered land-, freshwater- and seascapes less supportive of biodiversity.

- Tropical coral reefs (high sensitivity to present warming and ocean acidification), savannas (vegetation shifts due to increasing atmospheric CO2 ), tropical forests (vegetation shifts due mainly to drying), high latitude and altitude ecosystems and Mediterranean-climate ecosystems (high vulnerability to the high levels of ongoing and projected climate warming), and coastal ecosystems (exposed to multiple factors) are among the most vulnerable ecosystems of the world, are already highly impacted, and require robust intervention to maintain and enhance their adaptive capacity.

- Biodiversity conservation approaches such as Protected Areas have been essential for successes to date, but, on aggregate, have been insufficient to stem the loss of biodiversity at a global scale.

- Significant reductions in the destruction and degradation of forest ecosystems; non-forest terrestrial ecosystems such as wetlands and peatlands, grasslands and savannas; and
coastal ecosystems such as mangroves, salt marshes, kelp forests, seagrass meadows and deep water and polar blue carbon habitats can reduce greenhouse gas emissions from land- and sea-use change and maintain large carbon sinks if properly managed.

- Substantial co-benefits with biodiversity are realizable by reversing destruction and degradation of natural ecosystems – building on ambitious reductions in fossil fuel emissions as a precondition – with adaptive co-benefits to people. For example, coastal wetlands and coral reefs provide coastal protection from storm surges and rising sea level, while wetlands help reduce flooding.

- Restoring carbon- and species-rich ecosystems on land and in the ocean is also highly effective for both climate change mitigation and biodiversity, with large adaptation co-benefits.

- Technical and technological measures that are narrowly focused on climate adaptation can have large negative impacts on nature and nature’s contributions to people but can also be complementary to nature-based solutions. For example, technical measures for managing floods and droughts, such as building dams, or for protecting coasts from sea level rise, such as building sea walls, are of particular concern because they frequently have large impacts on biodiversity.

- Protected areas are an important instrument to address biodiversity loss, with climate mitigation and adaptation co-benefits. Optimal locations for protecting biodiversity are not necessarily fully coincident with optimal placement for land-based carbon capture, storage and sequestration, even though there is frequently a high correlation. For example, tropical rainforest and mangrove forests are two biologically diverse ecosystems that are typified by high rates of carbon sequestration.

- The restoration of mangroves in coastal urbanized areas is an example that fulfils multiple global biodiversity and climate objectives and enhances local nature’s contributions to people.

- Under the effects of biodiversity loss and climate change, crucial (hard to reverse or irreversible) thresholds (tipping points) can be exceeded with dire consequences for people and nature, but positive social tipping interventions can help attain desirable biodiversity-climate interactions. Climate change can cause biophysical limits of corals to be exceeded or sea-ice ecosystems to disappear, leading to regime changes to algal-dominated communities with markedly different function.

Full report available here.

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