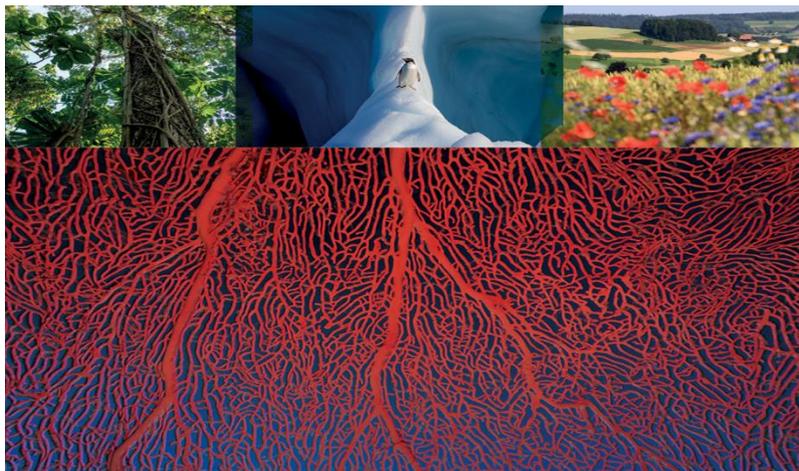


## Review of IPCC Biodiversity and Climate Change Workshop Report

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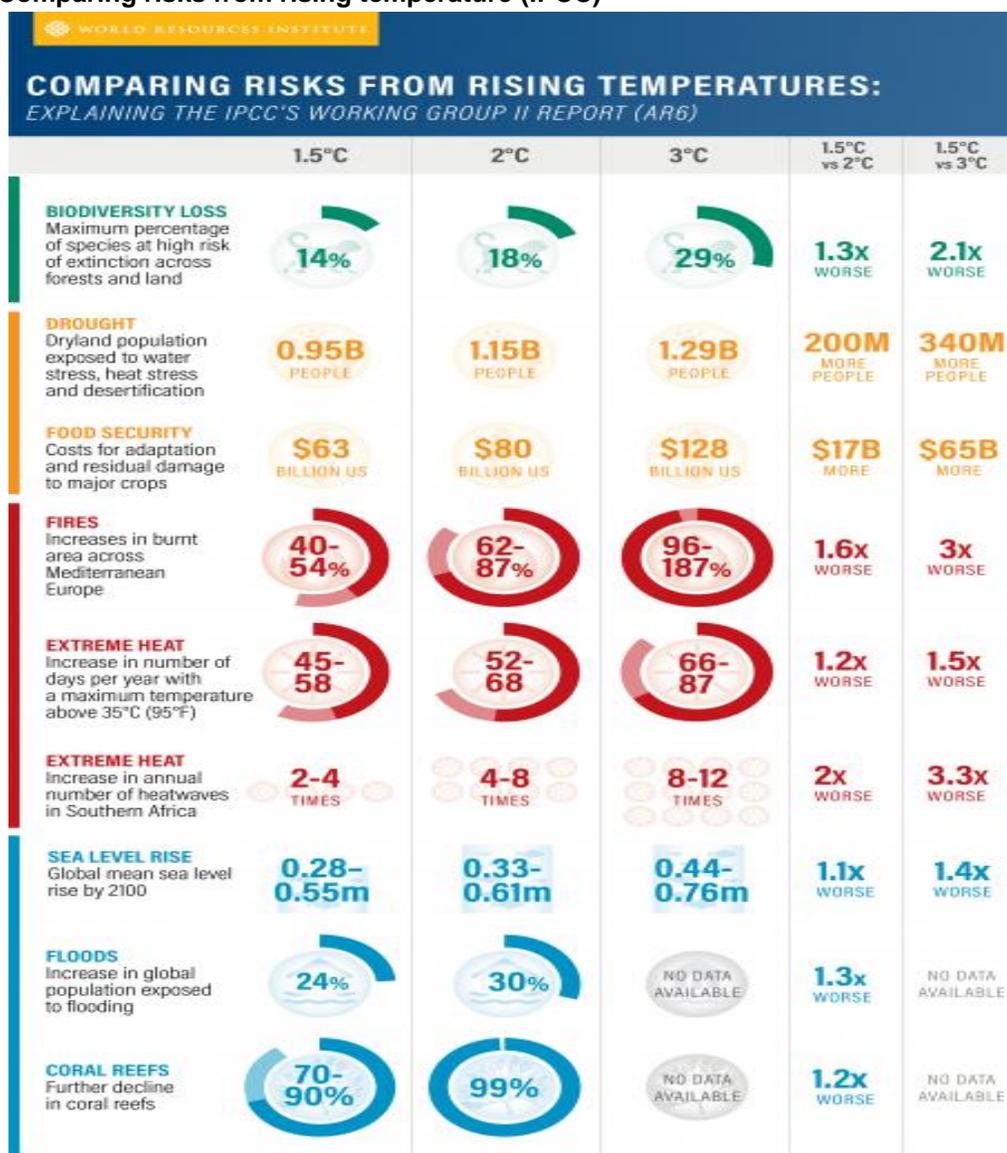


### 1. Introduction

The strong connection between biodiversity and climate change is difficult to be neglected. Rapid climate change directly affects the ability of ecosystem and species to adapt, resulting in the loss of biodiversity. The major risks of climate change and their impact on environment and biodiversity has been explained by IPCC (Intergovernmental Panel on Climate Change) (Table 1), suggesting that just 1.5°C of global warming is enough to melt the glaciers or to decrease the glacier mass, resulting in scarcity of water and even extinction of some species. Not only this, it can lead to increasingly severe droughts, rising sea levels, possible decreasing rainfall and regional flooding. Dealing with climate crisis is thus a crucial task, requiring the efforts from government, private, and civil sector. On the other hand, biodiversity reciprocally impacts the climate through its impact of carbon, nitrogen and water cycles.

It is clear that the climate and biodiversity are interconnected, however, they are usually regulated by different international Convention (the UN Framework Convention on Climate Change and the Convention on Biological Diversity), and intergovernmental body (IPCC and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)). This functional disengagement between climate change and biodiversity loss leads to problems in understanding the joint issues caused by this connection; it is difficult to deal with one problem related to either of them without the management of the other one. Thus, to sort out this complex issue workshop was conducted jointly by IPCC and IPBES in December-2020. This collaboration is the first ever joint effort made by these intergovernmental bodies to deal with the issues caused by climate change and biodiversity loss. The purpose of this workshop was to inform the society about the problems and to discuss solutions for the problems caused by climate change and biodiversity loss with the help of scientific knowledge and experts.

Table 1. Comparing risks from rising temperature (IPCC)



Note: For climate risks with projected ranges, we used the midpoint of the ranges to compare risks at different temperature thresholds. Sea level rise projections correspond to SSP1-1.9, SSP1-2.6, SSP2-4.5, which are roughly approximate to global warming of 1.5°C, 2°C, and 3°C, respectively.

## 2. Objective of the workshop

The main objectives of the workshop were the following:

1. Exploring the impact of climate on biodiversity
2. The capacity of the species to adapt to the changing climate
3. The effect of climate change on the resilience of ecosystems considering thresholds to irreversible change
4. The contribution of ecosystems to climate mitigation, by keeping an eye on ongoing loss in the biomass of biota and associated risks to key species and biodiversity as well as ecosystem.

Relevant information related to the implementation of the Paris Agreement, the Post-2020 Global Biodiversity Framework, and the Sustainable Development Goals was provided in this workshop.

### **3. The focus of the workshop**

The main focus of the workshop was to acknowledge the interconnection between climate change and biodiversity including:

1. The impact of changing climate on terrestrial, freshwater, and marine biodiversity and quality of life
2. The effect of change in biodiversity on characteristics of climate
3. Risks of considering climate change and biodiversity as separate issues
4. The opportunities, challenges, and risks of climate change mitigation and adaptation options for biodiversity, nature's contributions to people, and the quality of life
5. The impact of biodiversity conservation sustainable use practices on greenhouse gas emissions (i.e., climate feedback)
6. The analyses of the effectiveness of policies and governance structures that simultaneously address climate change and biodiversity loss
7. Key scientific uncertainties

### **4. Process commencement**

For the outlook of the co-sponsored workshop, a scientific steering committee (SSC) was made comprising six members selected by IPBES, and six by IPCC. An outline for the associated scientific outcome was proposed by SSC, comprising seven sections and 50 experts, 25 selected by IPCC and 25 from IPBES. Thus, both the agencies (IPBES and IPCC) participated almost equally in making the workshop successful and worked together on the same agenda.

The workshop focused on different aspects of the interaction between climate change and biodiversity, nature-based solutions to the problem, and the sustainable development of human society. The key points are as below:

1. There is a strong connection between climate change and biodiversity, thus we cannot resolve the one issue without considering the other one.
2. The irresistible desire of humans to improve their lifestyle by exploiting natural resources and increasing consumption of energy sources resulted in changes in climate over time, thus the loss of biodiversity which reciprocally affects the livelihood of humans.
3. If the international organizations that were working separately on climate and biodiversity issues will work together there will be maximum co-benefit on halting the climate and biodiversity problems simultaneously.
4. Climate change has severe negative effects on the ecosystems and species that are limited to a particular area or have limited ability to disperse such as mountains, islands, and coral reefs, and thus results in loss of biodiversity in these areas.
5. Biodiversity conservation approaches are helpful to deal with the problem but they are not sufficient thus, require more measures to control biodiversity.
6. New approaches would include the up-gradation of existing approaches. For example, the new approaches will focus on the conservation of multifunctional areas (including land, freshwater, and ocean-scapes), instead of focusing on only a few of nature's component elements independently, such as critical or intact habitats or iconic species.
7. Minimizing or even avoiding the degradation of carbon- and species-rich ecosystems on land as well as in the ocean is quite helpful for both biodiversity protection and climate change mitigation.
8. Improvements in climate change and biodiversity can be done by implementing changes such as sustainable agricultural, forestry practices, minimizing global warming, and deforestation. This will

result in an increase in carbon storage in farmland and forest soils and vegetation, and reduce greenhouse gas emissions.

9. The creation of green infrastructure in cities will have a direct impact on climate and biodiversity.
10. Afforestation or restoration of the forest is of great importance. Proper management protocols for conservation can contribute to altering the wildfire frequency and reintroducing key species which will be beneficial for both biodiversity and climate mitigation.
11. Strong and unavoidable trade-offs within the biodiversity-climate-society nexus, promotes social tipping interventions to modify the scenario the society and nature interact and it can be a viable joint solution.
12. Multi-sectoral planning can help in modelling the pathways to achieve goals in the SDGs, the Paris Agreement, and the post-2020 Global Biodiversity Framework in the medium and long term.

## **5. Conclusion**

Transformative changes are required from the society and the policies to combat together with the joint problems of climate change and biodiversity. For the success of policy intervention, we need to treat society, climate, and biodiversity as a coupled system. Measures that narrowly focus on only climate change or biodiversity will have sub-optimal effects in comparison to joint efforts which are more successful.

## **References**

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