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POSITION PAPER ON THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

Over the past two decades, the number of endangered species and the rate of ecosystem degradation have increased dramatically across all regions. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) noted that approximately 1 million plants and animal species are now at risk of extinction. Climate change is adding to and worsening the impact of biodiversity losses. Together, climate change and biodiversity losses threaten the viability of crucial ecosystems in many regions of the world. The Post-2020 Global Biodiversity Framework must acknowledge the urgency to stop and reverse the biodiversity crisis.

The Post-2020 Global Biodiversity Framework must include a focus on research and development of novel and complementary tools to enable success in restoring and protecting ecosystems. While there have been many successful initiatives, issues of cost, replicability, and scalability have challenged the ability to stop and reverse biodiversity loss using current tools alone. Without sustained support for research and innovation, enabled through high-level policy frameworks, the international community will not be able to deliver the speed, scale and affordability needed to meet conservation challenges.

SCIENCE IS KEY TO SUCCESS

The Post-2020 Biodiversity Framework (GBF) must explicitly recognize the role that science and research play in the development of novel tools and approaches as essential to achieving the post-2020 objectives.

Science and research are the cornerstone of evidence-based decision-making. They will underpin the ability to measure progress on the next biodiversity goals and support decision-making and prioritization. But science and research need to be recognized not only for their ability to provide information, but also for their role in delivering solutions.

The GBF should include commitments to supporting research and innovation to develop new tools to address biodiversity challenges. This

is important because:

- Recognizing the importance of innovative and complementary solutions in the new Biodiversity Framework is a crucial opportunity to reaffirm the need to build a supportive environment for research, development and, ultimately, change.
- Explicitly including research and investment in novel tools and approaches will help ensure financial, human and other resources are directed towards these activities in the future and that researchers are adequately supported.
- Emphasizing the need for innovative and complementary solutions is consistent with the emphasis on research in Sustainable Development Goal 9 (Industry, Innovation and Infrastructure) and with the recommendation from the latest IPBES report.



©Island Conservation

As noted in the [IUCN Assessment of Synthetic Biology and Biodiversity Conservation](#), research in the field of synthetic biology is ongoing and the state of knowledge is growing rapidly, offering possible tools to complement existing methods to stop extinctions, improve climate change adaptation and reduce pollution:

- In the US, researchers have developed a gene-edited version of the endangered American chestnut for potential forest restoration. The new tree is modified using a single gene derived from the wheat genome to tolerate a lethal fungus' substance. Nearly four billion American chestnut trees were growing in the eastern part of the U.S. a century ago and the nuts fed billions of wild species, people and their livestock, indicates [The American Chestnut Foundation](#). Now these trees are categorized as Critically Endangered on the IUCN Red List.
- To reduce water pollution, synthetic biology is being used to clean wastewater by using a granular material capable of attracting micropollutants and chemicals. The [World Health Organization](#)

estimates that by 2025, half of the world's population will be living in water-stressed areas.

- To reduce coral reef degradation due to climate change, scientists are researching the possibility of modifying coral genomes to increase their resistance to warming ocean temperatures, water acidification, and pollution. Corals are an essential source of nutrients for marine food chains, provide habitats for many marine organisms, protect coastlines from wave action, among many other important ecosystem functions. In 2016 and 2017, Australia's Great Barrier Reef alone lost approximately 50% of its corals, according to the [IUCN report Genetic Frontiers for Conservation](#).
- Researchers are also investigating the use of gene drive approaches to control the population of invasive alien species, as a complement to current tools. Present research is focused on mice and rats, the primary cause of extinctions on islands. A total of 1352 mammal, bird, reptile and amphibian species worldwide, classified as threatened, are primarily endangered by invasive alien species impacts, highlights [IUCN](#).

GBF OVERVIEW

Biotechnology

Target 17

Biotechnology is key to biodiversity conservation; hence the importance of acknowledging both its benefits and adverse impacts. This target establishes the necessary linkages to the Implementation Plan for the Cartagena Protocol, and reduces the risk that Parties overlook or underestimate the importance of the issue for the Framework and biodiversity conservation.

Invasive Alien Species (IAS)

Target 6

IAS are one of the main drivers of biodiversity loss, particularly in fragile ecosystems such as islands. Unfortunately, existing tools are limited by high costs, difficulties in accessing remote areas and impacts on non-target species. In order to successfully address prevention and mitigation needs, new scalable, cost-effective and sustainable approaches are needed.

Innovation & Scientific Research

Goal A, Goal D, Target 19.2, Section H

Capacity building, technology transfer and scientific cooperation are vital components for the implementation of the new Framework, but so are scientific research and innovation. Current methods and tools have led to many successful conservation initiatives but have been unable to revert biodiversity loss trends. Without acknowledging the role of innovation and scientific research, countries may underestimate their relevance and the resources dedicated to them, compromising the Framework's implementation and success.

Knowledge and IPLCs

Target 20 and Target 21

The participation of all stakeholders is crucial for the success of the Post-2020 Framework, and scientific and traditional knowledge are equally important for conservation efforts. Target 20 is another opportunity to clearly recognize the relevance of scientific research to overcome the current environmental crisis, alongside traditional knowledge.

Want to know more about gene drive?

[Access the publication](#)





THE CARTAGENA PROTOCOL IS ESSENTIAL TO ENABLE RESEARCH AND KNOWLEDGE TRANSFER

New technologies, such as those derived from synthetic biology and gene drive approaches, have the potential to contribute to addressing global conservation and health challenges. However, research on synthetic biology and genetic technologies must be carried out responsibly and safely. Biosafety is an essential aspect of the proper conduct of research on living modified organisms (LMOs).

Effective implementation of the Cartagena Protocol in signatory countries should be a priority for the Post-2020 Biodiversity Framework. Effective biosafety frameworks are important not only to enable countries to control the movement of living modified organisms (LMOs) but also to provide the predictability and clarity needed to encourage research and knowledge transfer.

The Cartagena Protocol is the foremost international framework for managing LMOs. Parties to the Protocol now are over 170, a clear sign of its importance and relevance. Yet, implementation of the Protocol is uneven across Parties, undermining trust in its processes and its ability to ensure smooth and robust international management of LMOs. Partial or inadequate implementation also create uncertainty for researchers and limit the ability of researchers to benefit from international collaborations through knowledge and technology transfer.

Specific actions could help support the implementation of the Protocol, and should be included in its Implementation Plan:

- Evaluate the need of Member States for support in the development and implementation of legal, administrative and other measures to implement the Protocol and provide training opportunities.
- Improve knowledge and access to detection, identification and monitoring methods.
- Increase timely information sharing on the Biosafety Clearing House.
- Facilitate access to adequate technical infrastructure and training for biosafety experts.
- Ensure that Parties have the necessary capability to take into consideration socio-economic aspects when making decisions on LMOs.

The implementation of the Cartagena Protocol should not be an end in itself. As knowledge and science advance, the Protocol should be revised to incorporate best practices and lessons learned and evolve to include wider and more ambitious coordination initiatives over time.

Urgency and commitment to change must guide the negotiations on the Post-2020 Global Biodiversity Framework. The increasing number of endangered species and the accelerating rate of ecosystem degradation require complementary new approaches and transformative tools to halt current trends. Parties must work to guarantee that the new Framework sets out the necessary conditions to encourage responsible research, support evidence-based decision-making and the development of new and complementary tools to conserve biodiversity, including LMOs.



For more information visit:
www.genedrivenetwork.org

