

DIGITAL WAYS FOR BIODIVERSITY CONSERVATION

The DWP 2024 'Biodiversity Futures' programme of this year has highlighted the Kunming-Montreal Global Biodiversity Framework (GBF), which was adopted at the fifteenth meeting of the Conference of the Parties (COP 15), in December 2022. This framework outlines a comprehensive plan to conserve and restore the planet's ecosystems by 2050, working towards 23 ambitious targets by 2030.

This document contains the Key Messages and Recommendations from the 2024 DWP Global Summit.

The Biodiversity Programme of 2024 was curated by Prof. Helena Freitas and Prof. António Gouveia, both UNESCO Chairs at University of Coimbra, Portugal.

KEY MESSAGES

Biodiversity Crisis: Biodiversity, encompassing species diversity, genetic resources, and ecosystems, is essential for human well-being. However, human activities have significantly impacted the planet's biodiversity, with 1 million species facing extinction.

Urgency for Action: Despite global promises set out in the Aichi Biodiversity Targets and the Sustainable Development Goals, progress has been slow. With only seven years to fulfill new targets for 2030, urgent action is needed to address the crisis.

Technology's Role: Digital technologies play a crucial role in understanding, monitoring, and conserving biodiversity. They offer diverse solutions, from remote sensing to citizen science apps, providing new tools for conservation efforts.

Opportunities and Challenges: Digital solutions offer immense potential but also face limitations and challenges. These include concerns about technology and data accessibility, environmental impact, and technical limitations, as well as the need for collaboration and effective communication.

KEY ACTIONS

SOLVE: Commit to reverse biodiversity loss and address its drivers.

UNDERSTAND: Accelerate efforts to comprehend the diversity of life on Earth and its contributions to society.

COLLABORATE: Emphasize active cooperation between technology companies, biodiversity experts and conservationists, local and indigenous populations, and other stakeholders.

DEVELOP: Create solutions through bottom-up dialogue, considering business models, tools, and environmental impacts within an ethical framework.

SUPPORT: Ensure adequate funding for long-term projects, investment in research infrastructure, and capacity building, with fair redistribution of resources and knowledge.

TRAIN: Provide targeted training in digital technologies while preserving and sharing traditional skills and knowledge systems.

COMMUNICATE: Effectively convey the importance of biodiversity, make scientific knowledge accessible, and engage all sectors of society.

RECOMMENDATIONS

1. Harness digital technologies to develop a universally accepted biodiversity metric for assessing progress towards concrete biodiversity targets.
2. Foster collaboration between technology and biodiversity stakeholders to enhance mapping of life on Earth, establish priorities and fill data gaps.
3. Establish a global catalogue of vernacular names of flora, fauna, and funga to complement scientific names, valuing and preserving local and indigenous knowledge.
4. Intensify efforts to digitize and provide open access to scientific collections and data worldwide, maximizing the power of information provided by biological specimens.
5. Prioritize the development of technologies for understanding the ocean, as current methodologies have strong limitations.
6. Facilitate targeted, collaborative meeting opportunities, addressing specific needs and recommendations, intensifying north-south and south-south collaborations.
7. Encourage further citizen involvement in data collection and conservation through participatory science initiatives, fostering a deeper appreciation for biodiversity's significance.
8. Foster digital tools for co-managing natural resources, integrating biocultural diversity considerations, to craft sustainable solutions for effective nature conservation.

9. Create guidelines for the responsible use of digital technologies in biodiversity, taking into account sustainability, fairness, privacy, accessibility, cultural diversity, and ethical considerations.
10. Kickstart a networking initiative involving stakeholders from the financial, biodiversity, and technology sectors to discuss funding needs and opportunities.
11. Develop databases and monitoring platforms to track the commitment to increase financing for biodiversity to USD 200 billion per year by 2030.
12. Facilitate open discussions to pinpoint training requirements and standards for the advancement and implementation of digital technologies in biodiversity.
13. Find innovative ways to raise awareness, train, and involve the media in biodiversity communication using digital technologies and available biodiversity data online.
14. Produce maps of biodiversity in local environments to enhance knowledge of 'everyday nature' and connect people to biodiversity issues.
15. Establish a permanent repository for sharing available technologies to address specific biodiversity needs, building on existing initiatives and providing regular reports.

We, the participants in the Education Track of the Digital with Purpose (DWP)

Global Summit 2024, coordinated this year by Dr Veerle Vandeweerd and Dr Georgios Kostakos, came together in Cascais, Portugal, for three productive days of plenary meetings and workshops, roundtables and innovative announcements. Representing the public, private, and civil society sectors from different countries/regions and continents, we focused on the crucial question of how to change, in concrete and implementable ways, the education systems from the local to the global level in line with the ambition of Sustainable Development Goal 4 ([SDG4](#)), adopted by all countries in 2015.

The event was filled with positive energy and determination by all stakeholder groups to effectively respond to the rapidly changing and increasingly digital world. Last year's Summit had called for an immediate transformation in education. **This year it was confirmed that the transformation was ready to take off in all education sectors** – formal and informal, early-life and life-long learning – with digital tools serving as catalyst.

Advances since the publication of the DwP 2023 [Manifesto](#) clearly demonstrate that knowledge and pilot projects are there, ready to be scaled up. **The question is no longer whether the transition will occur or not, but when it will be mainstreamed** to have a noticeable impact on all societies and economies.

WHAT SHOULD WE DO?

Based on expert opinion and discussions at the Digital with Global Purpose Summit 2023, several key priorities for biodiversity knowledge and conservation have been identified. These priorities are grouped here into seven actions, each with a set of recommendations. We encourage all stakeholders to review these needed actions and explore how they can contribute.

1. SOLVE

First and foremost, we need to be clear about what we have to do to solve the biodiversity crisis. We must:

1. Stop and reverse the loss of biodiversity.
2. Expand protected areas.
3. Reduce habitat disruption and fragmentation.
4. Minimize the negative impacts of land-use change.
5. Control the spread of invasive species.
6. Halt overexploitation of natural resources.
7. Combat deforestation and restore degraded areas.
8. Mitigate global drivers of change such as pollution and climate.

Recommendation 1.1: We should make best use of digital technologies to contribute to the development of an internationally agreed, monitorable, and adaptable biodiversity metric that can be used everywhere to assess our progress towards concrete biodiversity targets.

2. UNDERSTAND

Science has been trying to understand and catalogue life on Earth for centuries. Yet there is still much we do not know. We need to:

1. Accelerate efforts to determine how many species there are on Earth.
2. Improve the general understanding of nature's contributions to people.
3. Better understand the links between cultural and biological diversity.
4. Track, map, and assess ecological conditions in ecosystems.
5. Detect and predict the adverse effects of human activities.
6. Find new ways to fill the gaps in our knowledge.

Recommendation 2.1: Technology and biodiversity stakeholders should work together on digital solutions that can further help to map life on Earth and fill data gaps using a generative approach, avoiding duplication and making the best use of what is already available.

Recommendation 2.2: We should find an expeditious way to create a global catalogue of vernacular names of flora, fauna, and funga, or how people categorize and understand nature, as an indispensable complement to scientific names and to prevent the loss of local and indigenous knowledge through the disappearance of languages.

Recommendation 2.3: Efforts should be intensified to digitize and provide open access to scientific collections and data worldwide, maximizing the power of information provided by biological specimens.

Recommendation 2.4: Special attention should be given to technologies for understanding the ocean, as current technologies, such as remote sensing, are unable to capture most of what happens below the surface.

3. COLLABORATE

Nothing will happen fast enough without active collaboration between technology companies, biodiversity and conservation experts, and other stakeholders. We must:

1. Strengthen collaborative efforts between technology and conservation actors.
2. Provide large and safe spaces for networking and dialogue between all stakeholders.
3. Share infrastructure, information pipelines, and common services across borders.

4. Jointly identify challenges and co-create solutions with users.
5. Agree on common infrastructure models and formats for data sharing.
6. Maximize synergies between taxonomists, evolutionary biologists, and ecologists.
7. Promote collaborative species systematics networks in economically poor but biodiverse countries.

Recommendation 3.1: Technology and biodiversity stakeholders should develop targeted opportunities for collaborative meetings - such as workshops, focus groups, and other co-creation formats - with specific agendas that address the needs and recommendations outlined in this and other similar documents, with a particular focus on poorer economies or regions and intensifying North-South and South-South cooperation.

Recommendation 3.2: Participatory science initiatives actively including citizens in data collection, research strategies, and conservation efforts, should be further promoted, stimulating a greater understanding and appreciation of the importance of biodiversity.

Recommendation 3.3: Digital solutions should be developed to promote co-management of natural values and develop sustainable practices, taking into account biocultural diversity to create effective solutions for protecting nature.

4. DEVELOP

There are endless opportunities to develop solutions to address biodiversity loss and conservation. In doing so, we must:

1. Create solutions that emerge from bottom-up needs and strategies.
2. Generate business models to support the collection and sharing of data as a public good.
3. Develop appropriate digital tools for governance and management.
4. Address the environmental impacts of technologies at the design stage.

5. Ensure that technology infrastructures and tools are accessible.

Recommendation 4.1: A framework of best practices for the development and use of digital technologies for biodiversity purposes should be established, addressing their limitations and risks, including issues such as sustainability, equity, equality, data protection, accessibility, cultural diversity, and ethical considerations.

5. SUPPORT

It is widely recognized that there is not enough funding for either biodiversity or digital technologies, let alone both together. We must:

1. Ensure sufficient funding to support long-term projects.
2. Increase investment in information and research infrastructures.
3. Prioritize substantial investment in human capacity building in less privileged regions.
4. Support local and indigenous communities with technologies that are compatible with their environment.

Recommendation 5.1: A networking initiative should be launched, involving stakeholders from the financial, biodiversity, and technology sectors, to promote discussion on funding needs and opportunities to support the use of digital technologies for biodiversity knowledge and conservation, with particular attention to the specific needs of less affluent countries and traditional communities.

Recommendation 5.2: Databases and monitoring platforms should be developed to track the commitment to increase financing for biodiversity to USD 200 billion per year by 2030, as set out in Target 19 of the Kunming-Montreal Global Biodiversity Framework.

6. DEVELOP

Digital technologies require targeted training at all levels, including for highly specialized non-digital skills. We must:

1. Adapt the training of new scientists to the evolving ecosystem of digital technologies.

2. Motivate young people to work at the interface of biodiversity, information, and technology.
3. Promote digital literacy training in local and indigenous communities.
4. Address the growing shortage of taxonomists by training a new generation of experts in the field.

Recommendation 6.1: A focused dialogue should be held to identify training needs for the development and adoption of biodiversity-related digital technologies, and to inform action and direct funding towards capacity building.

Digital with Purpose Global Summit