CEBioS

YANGAMBI
& BEYOND

31/03
2026

Monitoring

Report

unesco
Man and the Biosphere Programme

belspo

Belgium
partner in development

natural sciences .be

Main editor
Luc Janssens de Bisthoven

With contributions or support of
Han de Koeijer, Tania D'haijere, Pierre Huybrechts, Vincent Pinton, Anne-Julie Rochette, Alice Vandommele, Kristien Vrancken, Thomas Wouters

This report is based on conference notes, presentations, and participant discussions. Artificial intelligence tools were used to assist in the rephrasing of certain sections of the document. The editors remain responsible for the content of the report.

Photo credits
Luc Janssens de Bisthoven, Anne-Julie Rochette

Layout
Kristien Vrancken

Published by CEBioS - Institute of Natural Sciences

More information : Dr. Janssens de Bisthoven L.
CEBioS - Institute of Natural Sciences
29 rue Vautier B - 1000 Bruxelles
Email : ljanssens@naturalsciences.be

Website : https://cebios.naturalsciences.be

unesco
Man and the Biosphere Programme

Belgium
partner in development

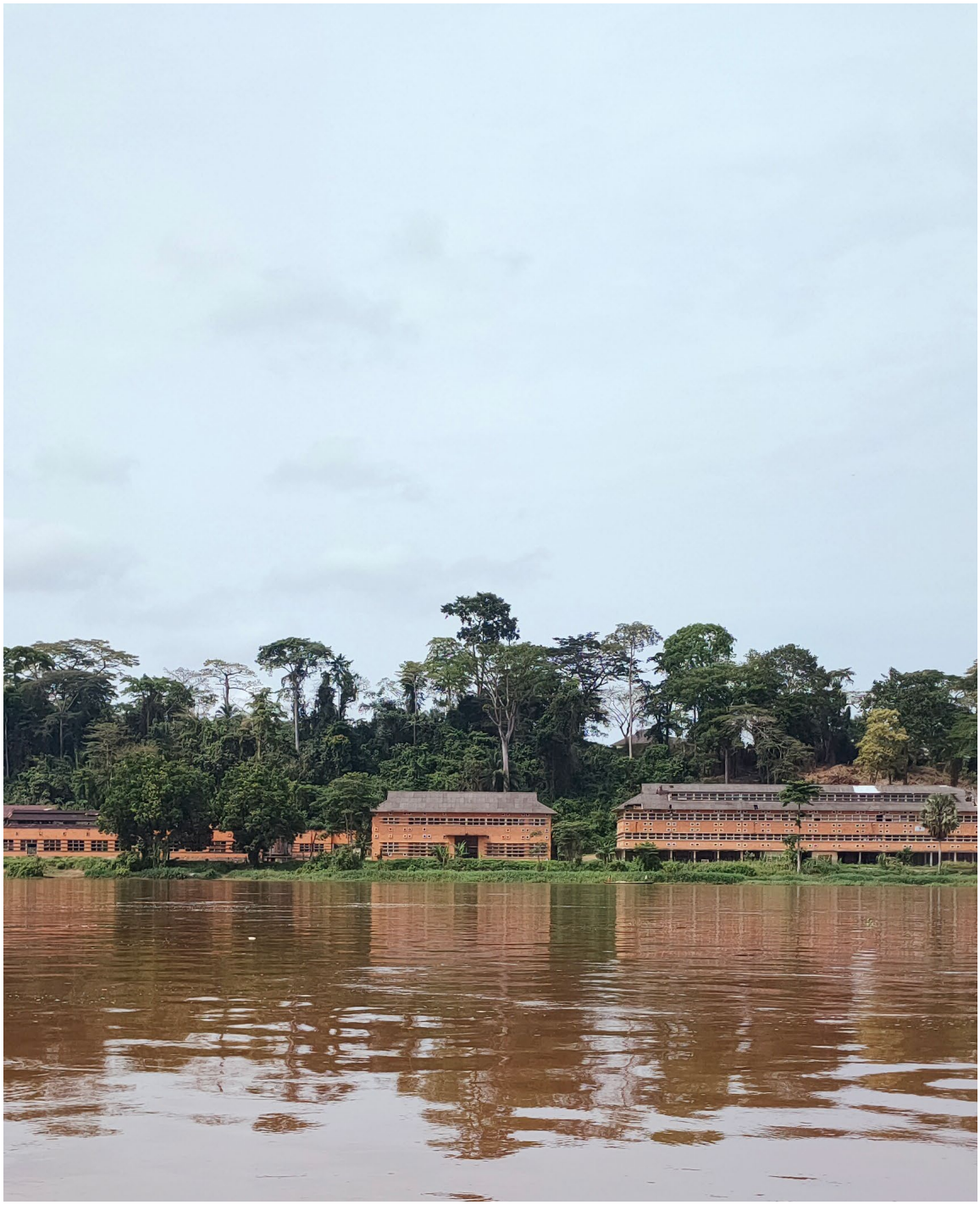
belspo

natural sciences .be

CEBioS

Table of contents

Abstracts can be found in the abstract book (annex)



General introduction

Three years after the Second International Conference on the Biodiversity in the Congo Basin, held in Kisangani (see reports), we felt it was the right time to take stock of the current Belgian research in the Yangambi Biosphere Reserve (DRC) and beyond, during a one-day colloquium on the 31st of March 2026.

The research community and most of their funding agencies in Belgium were invited for a day of exchanges about their work. The response was immediate and enthusiastic. In a few weeks' time, a colloquium was set up by the CEBioS Team at the Institute of Natural Sciences. An abstract book (link) was circulated.

In this report, we present a summary of questions and discussions arising from the respective presentations, thereby providing a snapshot of Belgian research groups' activities implemented in Yangambi and the Democratic Republic of the Congo (DRC), their highlights and concerns, as well as their recommendations and lessons learned.

In times of profound geo-political changes worldwide and across Africa, the Belgian research community is more than willing to assert itself on the international scene as being a key actor in current and future research, and associated capacity building in the Congo Basin. This colloquium demonstrates that the Belgian scientific community, as "Team Belgium", can be truly proud of its involvement in the Congo Basin. Research in one of the most important biodiversity hotspots on Earth, often referred to as the "green lung of the world", is a prerequisite to gain a global understanding on how the climate and biodiversity crises are evolving and affecting entire socio-ecological systems and their capacity to adapt in a sustainable and resilient way.

In just three years since the conference in Kisangani, the world has only just recovered from the Covid shock, while official development aid has since been reduced in every single country (OECD data[1]). At the same time, the credibility of science is being challenged by all kinds of fake news and conspiracy theories. Moreover, the DRC is currently facing major governance and external security challenges in its eastern provinces. In other words, the current situation in the world and in Africa is already fundamentally different from the situation a few years ago, which, once again, is one more reason to take stock of how the scientific community keeps being resilient at the forefront of research in the Congo Basin.

On a more positive note, the DRC is promoting itself as a "pays solution", through the visionary idea of a "Green Corridor", an economic development zone, spanning the Congo River between the Virunga NP and Kinshasa. This provides an additional argument for maintaining

1 https://www.oecd.org/en/data/insights/data-explainers/2026/04/a-historic-decline-in-foreign-aid-preliminary-2025-oda-data.html

our scientific presence and strengthening our involvement in building a sustainable future, based on nature-based solutions, the sustainable management and use of ecosystem services, and conservation linked to eco-tourism.

Unfortunately, a few weeks after this conference, a new Ebola outbreak emerged in Eastern RDC. The decreased funding of international aid was directly felt when coping with the epidemy and the associated zoonotic dynamics. The fact that it happens in a conflict region creates the perfect storm.

Finally, in a sense, this colloquium sends a very strong signal encouraging Belgian and Congolese policy makers for their highly appreciated efforts in favour of science, international solidarity and capacity building, a resourceful and strong Africa, and the pressing need for more scientific data in service of sustainable development.

Luc Janssens de Bisthoven

Coordinator of the CEBioS programme
Institute of Natural Sciences (RBINS)

Opening remark from RBINS

Ladies and Gentlemen,
Dear colleagues, dear partners,

It is a pleasure to welcome you to this day dedicated to “Yangambi and Beyond.” Welcome! I am delighted to see so many committed stakeholders gathered around such a crucial issue as biodiversity and the sustainable management of ecosystems.

The Royal Belgian Institute of Natural Sciences plays an important role in scientific research at both the national and international levels. It contributes not only to a better understanding of living systems, but also to the development and implementation of solutions to environmental challenges. This mission takes on a particular significance through our partnerships with the African continent, and more specifically within the Congo Basin, which constitutes one of the richest and most strategically important reservoirs of biodiversity on the planet.

In this regard, the CEBioS programme (Capacities for Biodiversity and Sustainable Development) perfectly illustrates our commitment. By supporting capacity building, promoting knowledge sharing, and assisting biodiversity policy development in partner countries, CEBioS helps build lasting collaborations based on trust and co-development. These initiatives remind us that science can only thrive through balanced partnerships in which expertise is shared and mutually strengthened.

This day is fully aligned with that vision. It provides a valuable platform for strengthening synergies, fostering exchanges, and generating new collaborations. Faced with global challenges such as biodiversity loss and climate change, no institution and no country can act alone. It is by connecting our skills, experiences, and perspectives that we will be able to develop responses commensurate with the scale of these challenges.

I would particularly like to thank the administrations represented here today, especially Belspo and the Directorate-General for Development Cooperation and Humanitarian Aid (DGD), for their continued support, as well as Enabel, whose commitment in the field is essential for translating ambitions into concrete action.

I would also like to highlight the participation of leading international partners such as UNESCO, the Senckenberg Society for Nature Research, and the JPI Climate Initiative. Their presence reflects the strategic importance of Yangambi and, more broadly, of the Congo Basin within international scientific and policy agendas.

The richness of this event also stems from the diversity of the stakeholders gathered here. Numerous Belgian institutions active in the Congo Basin are represented, including the Meise Botanic Garden, the AfricaMuseum, the Universities of Ghent, Antwerp, Liège-Gembloux, Hasselt, Leuven, and Brussels (ULB), as well as

the Institute of Tropical Medicine, among others. I am very pleased to see such strong collective mobilisation.

Above all, however, I would like to emphasise the central role of our Congolese partners. Their expertise, their knowledge of local realities, and their commitment are at the heart of the success of the projects carried out in Yangambi and beyond. I would especially like to acknowledge the presence of the CSB (Centre de Surveillance de la Biodiversité), University of Kisangani, represented today by two professors, including the Vice-Dean for Research of the Faculty of Agronomic and Environmental Sciences. Their contribution is essential to building research that is locally rooted and capable of delivering meaningful impact.

I would also like to draw attention to two fundamental dimensions for the future of our collaborations.

The first concerns the place of women in science and in the management of natural resources. Although they remain too often underrepresented, women play a key role both in the production of knowledge and in community dynamics and sustainable management practices. Strengthening their participation, supporting their careers, and recognising their contributions is not only a matter of equity; it is also a prerequisite for the effectiveness and relevance of our actions.

The second concerns the next generation of scientists. Young researchers and doctoral candidates (Congolese, Belgian, and others) embody the future of research. Their presence today, particularly through the poster sessions, is a very positive sign. They bring fresh perspectives and essential energy to address the challenges that lie ahead.

This day marks another step in the development of an international scientific community that is committed, open, and action-oriented. I wish you inspiring discussions and fruitful encounters and, above all, the emergence of new and lasting collaborations.

Thank you for your attention.

Michel Van Camp

General Director
Institute of Natural Sciences (RBINS)

Opening remark from DGD

Belgium's cooperation and research partnerships in the Congo Basin

It is a great pleasure to address you today at this colloquium dedicated to Belgium's cooperation and research partnerships in the Congo Basin. Your presence reflects the importance we all attach to this region which hosts among the most vital ecosystems on our planet.

DGD's support for Yangambi is spread over several grants, including a project led by UNESCO, several projects led by UGent, and the framework agreements with the Royal Museums for Central Africa and Natural Sciences. Many synergies exist with local and international partners. The overall ambition of the combined projects is to achieve scientific excellence through collaboration, co-creation and capacity building. Despite logistic and organisational challenges, Yangambi is today a genuine "pôle scientifique" equipped with modern research infrastructure and hosting well-trained local experts. Its success is generating scientific interest and co-financing from all over the world.

The Congo Basin is, and continues to be, a priority for Belgium's international cooperation. Its forests and biodiversity form one of the world's great natural treasures. Protecting these ecosystems and supporting their sustainable management is not only essential for local communities: it is essential for our collective future. This is why the Congo Basin stands at the heart of Belgium's international climate action.

But we all know that effective environmental action must rest on a solid foundation. And that foundation is science.

Scientific knowledge is indispensable for understanding ecosystems, guiding policy decisions, and shaping sustainable development that truly benefits local communities.

Equally important is the need to build and strengthen local scientific capacity; ensuring that research is grounded in local expertise, supported by longterm partnerships, and based on shared ownership. Ultimately, this approach ensures that scientific progress delivers tangible benefits to local populations. This remains a central priority of our cooperation in the region.

Belgium is fortunate to host strong scientific institutions with long-standing experience in tropical research, biodiversity and climate science. It is only natural that we seek to bring these strengths together, with local researchers, regional institutions, and international partners. Belgium has much to offer in terms of expertise, training, and scientific infrastructure, but we also recognise that these partnerships must be built on mutual exchange.

Today, however, we face a challenge that goes beyond environmental issues. More and more, science is being questioned or attacked as a basis for policymaking. At a moment when we need scientific

clarity, the very role of science is being undermined.

This is why, now more than ever, we must reaffirm that scientific evidence belongs at the heart of our environmental action. It is at the heart of Belgium's commitment, and of the work we support through international cooperation including by striving to bring together scientific research and development cooperation.

Of course, we are well aware of the challenges. Bringing together a wide range of actors is never easy. Aligning efforts, ensuring coherence, and working toward shared objectives require time, dialogue, and collective commitment. Yet we firmly believe that these very challenges make our work more impactful, and ultimately stronger.

That is precisely why meetings like today's are so valuable. They provide the space for meaningful discussion, allow us to hear diverse perspectives, and help strengthen our cooperation. I look forward to hearing your insights and experiences throughout the day. I am confident that our exchanges will deepen our partnership and further reinforce the vital connection between science and environmental action in the Congo Basin.

Thank you.

Annemarie Van der Avort

Director for Climate and Environment
Directorate-General for Development Cooperation and Humanitarian Aid (DGD)
Belgian Federal Public Service
Foreign Affairs

Objectives of the day

The colloquium was organised by the CEBioS programme of the Institute of Natural Sciences (RBINS) on 31 March 2026 and brought together researchers, practitioners, funding agencies, governmental institutions and conservation organisations involved in biodiversity research and sustainable development in the DRC.

Originally conceived as a seminar, the strong interest expressed by the Belgian and Congolese scientific communities rapidly transformed the event into a full-day colloquium. The meeting provided a unique opportunity to take stock of ongoing Belgian-supported research activities in the Yangambi Biosphere Reserve and across the DRC, while strengthening exchanges among the many institutions active in the Congo Basin.

The programme was structured around three thematic sessions and a multidisciplinary panel discussion. Presentations covered a wide range of topics, including biodiversity monitoring, forest ecology, climate research, taxonomy, genetics, disease ecology, conservation financing, sustainable forest management, action-research and science-policy interfaces. Together, they illustrated the diversity of scientific approaches currently being implemented in the Congo Basin and the growing importance of interdisciplinary collaboration.

Beyond the scientific presentations themselves, the colloquium aimed to stimulate dialogue between researchers, policy-makers, funding agencies and development actors. Discussions focused on identifying common challenges, sharing lessons learned, exploring opportunities for collaboration and reflecting on the future role of science in supporting biodiversity conservation, climate resilience and sustainable development in the region.

The event also provided an opportunity to highlight the long-standing collaboration between Belgian and Congolese institutions and to reaffirm the importance of scientific cooperation, capacity development and knowledge sharing as key foundations for addressing the environmental and societal challenges facing the Congo Basin.

Opening presentation

CEBioS' interventions in the DRC

Luc Janssens de Bisthoven
(CEBioS programme - RBINS)

Summary

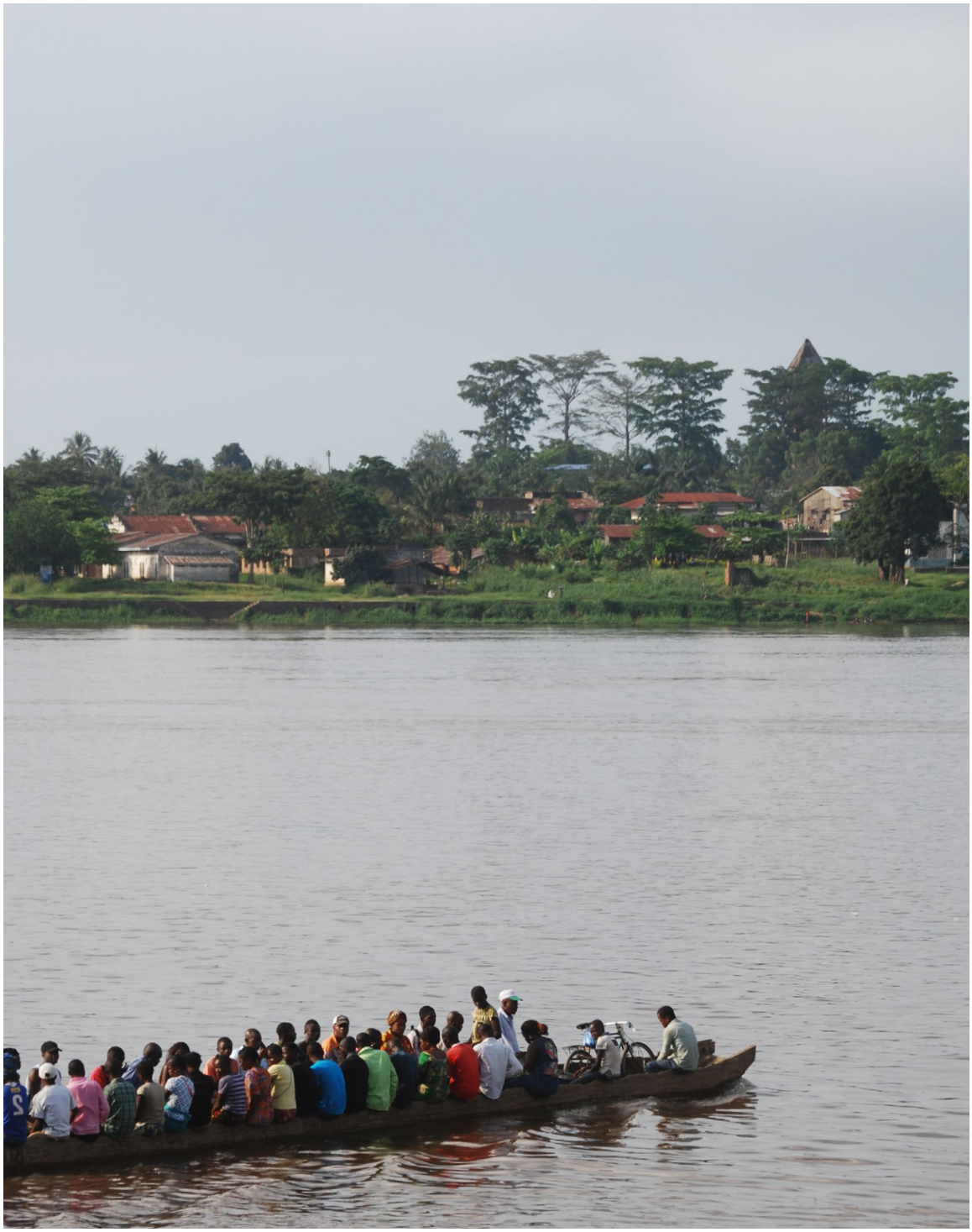
The opening presentation provided an overview of the CEBioS programme and its activities in the DRC. CEBioS supports the implementation of the Convention on Biological Diversity (CBD) and related international commitments through a broad portfolio of capacity development, institutional partnerships and science-policy support activities. Working with governmental institutions, universities, research centres and conservation organisations, the programme contributes to strengthening biodiversity knowledge, monitoring systems, policy processes and scientific capacities in its partner countries, including the DRC. Particular emphasis was placed on the long-term institutional partnership with the Centre de Surveillance de la Biodiversité (University of Kisangani) as well as on efforts to support biodiversity data mobilisation, ecosystem monitoring, biodiversity governance and decision-making. The presentation illustrated how complementary initiatives contribute to different stages of the biodiversity knowledge chain, from data collection and scientific research to policy support, awareness raising and international reporting.

Key messages

- CEBioS supports biodiversity conservation and sustainable development through capacity development, institutional partnerships and science-policy engagement.
- Activities cover the full biodiversity knowledge chain, from biodiversity data collection and monitoring to policy support and decision-making.
- Long-term partnerships with Congolese institutions, including the CSB (UNIKIS), ICCN, universities and government agencies, constitute a central pillar of the programme.
- The programme contributes to biodiversity governance through support for the Clearing-House Mechanism, the Nagoya Protocol and biodiversity-related policy processes.
- Capacity development is implemented through training, project calls, technical support, scientific networking and South-South cooperation.
- Biodiversity monitoring, data mobilisation, taxonomic capacity development and public awareness remain important thematic priorities.

Challenges and perspectives

- Sustaining long-term institutional partnerships and scientific capacities remains essential for biodiversity conservation and monitoring.
- Continued efforts are needed to strengthen biodiversity data availability, accessibility and use in decision-making processes.
- Strengthening science-policy interactions and supporting national biodiversity reporting remain important priorities.
- Consolidating national and regional networks will be key to ensuring long-term sustainability and impact.



SESSION 1

Research in Yangambi: understanding ecosystems and biodiversity

UGent Congo Basin Centre of Expertise: overview of research infrastructure, staff and activities in Yangambi and beyond

Pascal Boeckx, Marijn Bauters, Wannes Hubau, Hans Verbeeck, Onésime Mubenga, Corneille Ewango, Jean-Remy Makana, Bhély Angoboy, Laurent Kidinda, Basile Mujinya Bazirake & Landry Cizungu
(Ghent University, UNIKIS-CSB, INERA and partners)

Summary

The presentation provided an overview of the Congo Basin Centre of Expertise (CBCE), a collaborative research hub coordinated by Ghent University and partner institutions. The CBCE combines long-term ecological and biogeochemical research with scientific infrastructure development and capacity building activities centred on the Congo Basin. Research covers rainforest, secondary forest, savanna (miombo), peatland and agricultural landscapes, supported by extensive field observations and environmental monitoring systems. Particular attention was given to the CongoFlux infrastructure and associated atmospheric, ecological and hydrological monitoring platforms, which contribute to understanding forest carbon dynamics, greenhouse gas fluxes and ecosystem responses to global environmental change. Through sustained collaboration with partner universities and research institutions, the CBCE supports student training, jointly supervised research and scientific capacity building in the Congo Basin.

Key messages

- The CBCE integrates ecological, atmospheric and biogeochemical research across forest, miombo, peatland and agricultural ecosystems in the Congo Basin.
- The CongoFlux and associated monitoring infrastructures provide long-term data on carbon cycling, hydrology and ecosystem functioning.

- Multiple complementary approaches are integrated, including atmospheric greenhouse gas monitoring, forest plot inventories, remote sensing and forest dynamics modelling.

- New research tools and datasets are being developed, including a regional wood density database and digitised climate records.

- The CBCE combines research excellence with sustained investment in local capacity building and scientific collaboration.

Challenges and perspectives

- Long-term monitoring and modelling are essential to better understand carbon dynamics, ecosystem responses and future forest dynamics in the Congo Basin.

- Increasing temperatures and atmospheric factors, including ozone concentrations, may influence photosynthesis and carbon uptake.

- Forest recovery and biomass accumulation are long-term processes, so they require sustained monitoring.Continued integration of ground observations, atmospheric measurements and modelling approaches is needed to better understand ecosystem responses to global change.

- Improving model performance for secondary and regrowth forests remains an important challenge, as current vegetation models may overestimate recovery trajectories.

Wood biology infrastructure, capacity building and multidisciplinary research in Yangambi and beyond

Wannes Hubau, Pauline Hicter, Félix Laurent, Nestor Luambua, Guy-Crispin Gembu Tungalunga, Bhély Angoboy & Jean-Remy Makana
(Africamuseum, UGent, INERA, UNIKIS-CSB)

Summary

The presentation highlighted more than two decades of collaborative research and capacity building activities coordinated by the Africamuseum and its partners in the Yangambi landscape and beyond. This work combines the development of scientific infrastructures, long-term ecological monitoring, multidisciplinary tropical forest research, and extensive training activities involving Congolese and international researchers. Particular emphasis was placed on the Yangambi Wood Biology laboratory and the CongoFlux infrastructure, which contribute to understanding the role of several components of the forest in ecosystem carbon uptake. The presentation also showed how Yangambi has progressively become a recognised research "supersite" connected to major international scientific networks and initiatives.

Key messages

- Central African forests play a major role in global carbon cycling and carbon storage, although climatic extremes such as El Niño-driven droughts may temporarily reduce carbon uptake through increased tree mortality.
- Long-term monitoring networks continue to expand across the Congo Basin, with monitoring efforts projected to reach 11 sites and 168 plots.
- Extensive long-term forest monitoring datasets have been developed and integrated into large international networks for analysis.
- Capacity building activities include joint PhDs, technician training botanical field schools, and proposal co-development.
- The Yangambi platform increasingly serves as an important hub for multidisciplinary forest science and training in the Congo Basin.

Challenges and perspectives

- Important data gaps remain regarding soil carbon dynamics and long-term ecosystem responses to climate change.

- Sustaining long-term infrastructures and monitoring programmes requires stable international support. Expanding monitoring activities to remote protected areas remains logistically challenging.

- Continued investment in local scientific expertise, particularly in botany and wood anatomy, was identified as a priority.

Discussion points

- Participants discussed the impacts of El Niño-driven droughts on forest carbon uptake and tree mortality.

- Questions were raised regarding the ole of scientific data in carbon credit mechanisms and independent forest reference levels.

- The importance of improving local community engagement and science communication around research infrastructures was also emphasised.

Restoring nature's health: Investigating the effects of ecosystem degradation and restoration on zoonotic disease risk in the Congo Basin

Joachim Mariën, Cato Vangenechten, Pauline Van Leeuwen1, Claude Mande, Steve Ngoy, Pascal Baelo, Ali-Hassan Twaha, Corneille Kahandi, Madeleine Alimasi, Joel Kango, Moïse Bipoo, Tine Cooreman, Emilie Goossens, Herwig Leirs, Sophie Gryseels, Vincent Sluydts, Lucinda Kirkpatrick, Erik Verheyen & Guy-Crispin Gembu
(CSB-UNIKIS, University of Antwerp, Institute of Tropical Medicine, and partners)

Summary

The presentation introduced ongoing research under the RESTOREID and PILOTMAB projects investigating how ecosystem degradation and forest restoration influence zoonotic disease risk in the Congo Basin, particularly in the Yangambi Biosphere Reserve. Using a One Health approach, the research combines biodiversity monitoring and pathogen surveillance across a gradient of degraded, restored and mature forest habitats. The work focuses primarily on small mammals (including rodents, shrews and bats) using complementary methods such as trapping, environmental DNA (eDNA), invertebrate-derived DNA (iDNA), passive acoustic monitoring and viral screening. Preliminary results indicate variation in mammal diversity and viral circulation among habitats and host taxa, with older secondary and mature forests generally harbouring greater diversity than younger or more degraded sites. The research is partly grounded in the hypothesis that biodiversity and ecosystem recovery may contribute to disease regulation through dilution effects and altered host-pathogen dynamics. Beyond advancing knowledge on ecosystem restoration and disease dynamics, the projects also contribute to local scientific capacity building through field training, student supervision and multidisciplinary collaboration.

Key messages

- The RESTOREID and PILOTMAB projects investigate links between ecosystem degradation, restoration and zoonotic disease risk within a One Health framework.
- Research is conducted across a habitat gradient in the Yangambi Biosphere Reserve, ranging from degraded and village-edge habitats to secondary and mature forest systems.
- The study combines small mammal trapping, bat and bushmeat sampling, mosquito trapping, eDNA, iDNA, passive acoustic monitoring and PCR-based viral screening.
- Small mammals, particularly rodents, shrews and bats, constitute key focal taxa due to their potential role in pathogen transmission.
- Preliminary analyses suggest greater mammal diversity in older forest

systems and reveal the circulation of several RNA viruses within wildlife communities.

Challenges and perspectives

- Field research in remote forest environments remains logistically demanding and resource intensive.
- Further analyses are needed to clarify links between biodiversity, restoration and pathogen dynamics.
- The research generates knowledge and expertise that can inform future disease surveillance and response efforts in the region. Continued investment in multidisciplinary monitoring and local scientific capacity remains essential.

Discussion points

- Participants discussed the role of large mammals, which are considered through complementary monitoring approaches, including bushmeat sampling and camera trapping.
- Questions were raised regarding the relevance of Yangambi as a zoonotic disease study site, with presenters highlighting the importance of human-forest interfaces and small mammal reservoirs.
- The project was presented as contributing expertise and baseline knowledge that may inform broader disease surveillance and response efforts in the DRC.

Session 1 conclusion

The first session highlighted the growing scientific importance of the Yangambi Biosphere Reserve. It serves as a multidisciplinary research platform for environmental monitoring, ecological research and scientific collaboration in the Congo Basin. Across the three presentations, a shared ambition emerged: generating robust scientific knowledge while simultaneously strengthening local research capacities, scientific infrastructures and long-term partnerships. In this way, it will be possible to consolidate the current research infrastructure of the DRC as well as to better understand the current climate and biodiversity crises.

The presentations illustrated the diversity and complementarity of research infrastructures and approaches currently deployed in Yangambi and beyond. From wood biology laboratories and forest carbon monitoring systems to biodiversity surveillance and zoonotic disease research, the studies showed how Yangambi serves both as a field-based research platform and as a strategic site for addressing broader environmental and public health questions.

The importance of an integrative approach emerged clearly. Long-term monitoring, more integrated datasets, and a deft combination of field observations, technological innovations and multidisciplinary expertise will be essential to better understand how the ecosystems in Yangambi and beyond function. Such approaches are essential for understanding ecosystem functioning, resilience and responses to environmental and climatic change. However, serious obstacles hinder the ability to maintain the required research infrastructures and to sustain fieldwork in such remote environments.

All presentations underscored the central role of collaboration and capacity building. Joint supervision, technical training, support to students and long-term institutional partnerships should not be seen as secondary activities, but as core elements of research development in the Congo Basin. It is clear that Yangambi increasingly functions as a collaborative platform where ecological, atmospheric and health-related research converge to generate knowledge of both local and international relevance. This positions Yangambi as an increasingly important hub for research, conservation and capacity development in the DRC and across the Congo Basin.

SESSION 2

Scientific approaches and tools for biodiversity research

Yangambi, DRC: a unique place for monitoring, conserving and valorising biodiversity in the context of global change

Piet Stoffelen, Robrecht Bollen, Christine Cocquyt, Francesca Lanata, Salvator Ntore, Augustin Peeters, Filip Vandelook & Steven Dessein
(Meise Botanic Garden and partners)

Summary

The presentation highlighted the longstanding collaboration between Meise Botanic Garden and Congolese institutions, rooted in historical botanical collections and progressively transformed into a modern scientific partnership centred on biodiversity conservation, research and capacity building. Yangambi occupies a central place within this collaboration as an emblematic Biosphere Reserve and a major research and collection hub. Through initiatives ranging from the *Flore d'Afrique centrale* and herbarium rehabilitation to biodiversity inventories, digitisation and conservation of genetic resources, the partnership aims to strengthen botanical knowledge while supporting local expertise and sustainable resource valorisation. The presentation emphasised the importance of reliable taxonomic tools and well-curated collections for biodiversity monitoring, ecological research and climate-related studies. It further illustrated how biodiversity knowledge, genetic resources and scientific collections can support both conservation and sustainable development through crop improvement, climate-resilient agroforestry, food security and community-based valorisation initiatives.

Key messages

- The *Flore d'Afrique centrale* and associated botanical collections constitute essential tools for plant identification, biodiversity monitoring and botanical research in Central Africa.
- Yangambi and a network of herbaria, botanical gardens and ex situ collections in the DRC have undergone

rehabilitation and scientific curation to strengthen their role as centres of expertise, plant identification and biodiversity research.

- Large-scale digitisation efforts have improved access to botanical and ecological information, including historical herbarium and eco-climatological archives.

- Biodiversity inventories continue to reveal numerous undescribed species, demonstrating that important knowledge gaps persist even in relatively well-studied areas such as Yangambi.

- The partnership combines biodiversity research with conservation and valorisation of plant genetic resources, particularly wild and cultivated coffee collections

Challenges and perspectives

- Accurate taxonomic identification remains a major challenge, with many specimens historically misidentified or left unidentified.

- Digitisation and publication of botanical databases remain ongoing processes requiring sustained technical and institutional support.

- Historical collections and archives offer significant but still underused potential for climate and environmental research.

- Strengthening local expertise and maintaining scientific collections remain essential priorities for long-term biodiversity research and conservation.

- Long-term institutional engagement and effective collaboration among multiple stakeholders are needed for scaling up conservation and valorisation initiatives.

Discussion points

- Participants discussed the potential use of taxonomic expertise and reference collections to support species identification from photographic records.

- The discussion also highlighted the importance of maintaining historical collections and associated datasets as resources for biodiversity and environmental research.

The CSB in Yangambi: advancing biodiversity research, monitoring and partnerships

Onésime Mubenga & Guy-Crispin Gembu
(Centre de Surveillance de la Biodiversité, University of Kisangani)

Summary

The presentation examined the role of the Centre de Surveillance de la Biodiversité (CSB) as a long-term scientific platform supporting biodiversity research, monitoring and institutional collaboration in Yangambi and beyond. Positioned in the heart of the Congo Basin, the CSB was shown to be not only a centre for biodiversity data mobilisation, but also a long-term platform and an operational foothold for researchers and partner institutions working in the region. Its activities encompass baseline data collection, development of standardised monitoring methods, biodiversity data management, and the maintenance of scientific collections and biodiversity reference datasets. The presentation emphasised the importance of transforming biodiversity research from isolated projects into a continuous institutional process supported by stable partnerships, local expertise and durable scientific infrastructures. Beyond research itself, the CSB also plays a central role in training students and researchers and contributes scientific information relevant to national and international biodiversity reporting and decision-making.

Key messages

- The CSB combines biodiversity research, long-term monitoring and partnership development within a single institutional platform.
- The centre supports the full biodiversity information chain, from baseline data collection and standardised methodologies to data management, scientific collections and repeatable long-term monitoring.
- The CSB serves as a training and capacity-building hub for students, researchers and partner institutions.
- Scientific outputs generated through the CSB contribute to biodiversity knowledge as well as national and international reporting processes.
- Stable partnerships, long-term continuity and interoperability across projects, datasets and institutions were identified as essential conditions for sustainable biodiversity monitoring.

Challenges and perspectives

- Ensuring the long-term continuity of biodiversity research and monitoring remains a major priority, requiring stable institutional support, local leadership and knowledge retention.
- Strengthening interoperability and durable collaboration among partner institutions remains essential for effective biodiversity data mobilisation, management and use.

- Continued investment in scientific infrastructure, stable staff and institutional capacity is needed to consolidate the CSB's long-term role in Yangambi and beyond.

Discussion points

- Participants discussed whether a single centre could adequately support biodiversity monitoring across the DRC.
- The presenters emphasised that the CSB operates through a broader network of provincial antennas and institutional partners, helping to mobilise biodiversity data across the country.
- The importance of sustained collaboration with government institutions was highlighted, particularly in relation to biodiversity indicators, national reporting and implementation of conservation strategies.

Current state of forest research and monitoring approaches in the DRC at Gembloux Agro-Bio Tech, University of Liège

Cédric Vermeulen, Jean-François Bastin & Thibault Collet
(University of Liège, Gembloux Agro-Bio Tech)

1. Forest research, sustainable management and partnerships in the Congo Basin

(**Cédric Vermeulen**)

Summary

The presentation provided an overview of forest-related research and partnerships developed by Gembloux Agro-Bio Tech and associated partners in the DRC and across the Congo Basin. Activities include forest ecology, silviculture, timber research, community forestry and sustainable resource management, while also contributing to postgraduate training through collaborations with institutions such as ERAIFT and Congolese universities. Particular attention was given to research on commercial and lesser-used timber species, including studies on growth, regeneration and phenology, as well as research on wood properties and timber valorisation. The presentation also highlighted initiatives related to forest governance, REDD+ implementation, community forestry, biodiversity conservation and health-related challenges, illustrating the diversity of research and applied activities currently supported through these partnerships.

Key messages

- Gembloux Agro-Bio Tech contributes to forest research and sustainable management through long-standing partnerships in the DRC and across the Congo Basin.
- Research activities cover forest ecology, silviculture, wood technology and timber valorisation, with attention to both commercial and underutilised timber species.
- Field data on growth, regeneration and phenology contribute to improved knowledge of forest species and support sustainable forest management.
- The programme combines research activities with postgraduate training and collaborations involving Congolese universities, ERAIFT and partner institutions.
- Applied initiatives address topics such as REDD+, community forestry, biodiversity conservation, health-related challenges and sustainable resource management.

2. Forest observatories and drone-based monitoring approaches

(**Thibault Collet**)

Summary

The second presentation focused on the CANOBS network and the development of forest observatories using drone-based remote sensing technologies. Combining LiDAR and multispectral imagery with forest inventories, the approach aims to characterise forest structure and support research on forest succession and phenological dynamics. Operational sites established in the DRC and neighbouring countries allow regular data acquisition and support the development of standardised monitoring protocols. The presentation also discussed the deployment of observatories, training activities and the integration of drone observations with forest inventories.

Key messages

- The CANOBS network combines drone-based monitoring with field inventories to support research on forest structure, succession and phenology.
- LiDAR and multispectral approaches provide complementary information on forest structure and vegetation dynamics.
- Operational observatories and trained local teams enable regular and standardised monitoring.
- Drone observations can support the detection of forest disturbance and complement field-based ecological monitoring.

Discussion points

- Participants discussed the potential of drone-based monitoring to detect small-scale deforestation and support zero-deforestation certification schemes, while acknowledging that scaling up these approaches to large landscapes and numerous producers remains challenging.
- The discussion also addressed the integration of drone observations with ground inventories, emphasising that species-level identification is currently limited to canopy trees previously identified in the field, highlighting the importance of combining remote sensing with ecological field data.

Cross-cutting challenges

- Maintaining long-term monitoring and research activities requires sustained institutional commitment, technical expertise and continued collaboration among partners.
- Generating comparable and long-term datasets requires standardised methodologies and consistent data collection efforts across sites and projects.
- Field-based research in remote forest environments remains logistically demanding and requires adequate infrastructure and operational support.

Cross-cutting perspectives

- The two presentations illustrated complementary approaches to studying forests in the Congo Basin, combining field-based ecological research, forest inventories and drone-based observations.

- Both presentations highlighted the importance of long-term data collection and monitoring for improving knowledge of forest structure, dynamics and management.

- Together, the presentations showed how information on forest ecology, species characteristics and forest structure can be generated through a combination of field studies and remote sensing approaches.

Parasitology in the DRC: Parasite diversity and disease ecology

Emilie Goossens, Joachim Mariën, Tine Huyse & Maarten Vanhove
(UHasselt, Institute of Tropical Medicine, RMCA and partners)

Summary

The presentation explored ongoing parasitological research in the DRC, with a particular focus on helminth diversity and disease ecology in the Yangambi landscape. Conducted within the Zoology Research Group at UHasselt and in collaboration with researchers from the RESTOREID and PilotMAB+ projects, the research investigates how biodiversity loss and anthropogenic disturbance influence host-parasite dynamics and infection patterns. Rodents were sampled across a disturbance gradient including forests, plantations, agricultural fields and villages, using sites associated with the Yangambi mega-transect and COBIMFO plots. Helminths isolated from gastrointestinal tracts were subsequently examined through morphological and molecular approaches. Preliminary findings revealed a predominance of nematodes, fewer cestodes and no trematodes among examined rodents. Beyond assessing zoonotic and disease-related risks, the presentation emphasised the ecological importance of parasite diversity and the need to better understand parasite communities as components of biodiversity.

Key messages

- The research investigates relationships between biodiversity, habitat disturbance and helminth diversity and infection in the Yangambi landscape.
- The study is partly grounded in the dilution effect hypothesis, which predicts that biodiversity loss may alter parasite transmission dynamics and increase infection risks in disturbed environments.
- Sampling is conducted across a disturbance gradient ranging from mature forests to villages, using rodent communities as focal hosts.
- Preliminary results identified predominantly nematodes, with fewer cestodes and no trematodes observed in sampled rodents.
- The study combines morphological and molecular approaches and collaborates closely with viral research initiatives to better understand disease ecology and potential co-infection patterns.
- Parasites were presented not only as disease agents but also as important components of biodiversity and ecosystem functioning.

Challenges and perspectives

- Helminth identification and analysis remain ongoing, with additional host species and habitats still to be investigated.

- Future work aims to develop molecular protocols using stool samples, reducing the need for destructive sampling

- Further integration with complementary disease ecology studies, particularly viral research, may improve understanding of biodiversity-disease relationships and co-infection dynamics

- Parasitological research in the DRC is also expanding beyond Yangambi, including work on fish parasitology, parasite evolution, parasites as bioindicators in aquatic ecosystems and water-related disease transmission.

- Clarifying the relationships between habitat disturbance, biodiversity and helminth infection dynamics remains a key research challenge.

Discussion points

- Participants discussed the ecological role of parasites and the balance between parasite conservation and human or animal health concerns.

- The presenter emphasised that parasites represent an important component of biodiversity and should not be viewed exclusively through a disease lens.

- Questions were also raised regarding ectoparasites and existing local research initiatives, including opportunities for exchange and collaboration.

How genetic tools improve our knowledge of African flora and the evolution and ecology of plant species?

Olivier Hardy
(Université Libre de Bruxelles)

Summary

The presentation examined how genetic and genomic tools increasingly contribute to understanding African forest biodiversity, species evolution and ecosystem functioning. Drawing on examples from Central African forests, the presentation illustrated how population genetics, DNA barcoding and phylogeographic analyses can complement traditional botanical approaches and provide new insights relevant to taxonomy, ecology and forest management. Particular emphasis was placed on the importance of integrating genetic and morphological information to improve species delimitation and avoid misidentification. It also illustrated how genetic approaches can reveal cryptic species, suggesting that tropical African tree diversity may be considerably higher than currently recognised. Beyond taxonomy, genetic tools also provide valuable information on ecological and historical processes, including seed and pollen dispersal, forest fragmentation and demographic history, while also providing information relevant to the management of exploited tree species.

Key messages

- Genetic tools complement traditional taxonomy and have revealed substantial cryptic diversity, suggesting that African tropical tree diversity may be considerably underestimated.
- Species delimitation requires combined genetic and morphological validation rather than relying on molecular data alone.
- DNA barcoding and metabarcoding provide powerful tools for species identification and ecological studies, including diet analysis.
- Phylogeographic analyses help reconstruct past forest dynamics and historical fragmentation processes across Central Africa.
- Genetic markers can support sustainable forest management by improving understanding of reproduction, pollen and seed dispersal, and the effects of selective logging.

Challenges and perspectives

- Developing and maintaining genetic laboratory infrastructure in tropical Africa remains technically and financially challenging due to electricity, cold-chain and maintenance constraints.
- New sequencing technologies and outsourcing approaches increasingly allow high-quality genetic research with more limited local infrastructure.
- Strengthening African expertise in genetic data analysis and interpretation was identified as a major priority.

- The implementation of the Nagoya Protocol was discussed as an important consideration for biodiversity research and the management of genetic resources.

Discussion points

- Participants discussed the potential and limitations of emerging technologies such as portable sequencing systems and nanopore technology for field-based applications.
- Participants discussed priorities for future African research infrastructures, including the potential role of biodiversity genetics and sequencing facilities.
- Participants also discussed the implications of cryptic species discovery and revised species diversity estimates for biodiversity assessment and conservation planning.

Session 2 conclusion

The second session highlighted the diversity and complementarity of scientific tools and approaches currently used to study biodiversity and ecosystem dynamics in the Congo Basin. Across presentations, a common message emerged: understanding biodiversity and climate requires the combination of multiple approaches and tools, ranging from parasitology and disease ecology to genetics, forest ecology and remote sensing technologies.

Session two further reinforced the importance of a holistic, integrative approach, combining field observations, laboratory analyses and technological innovations to generate more robust and decision-relevant knowledge. Long-term monitoring, standardised methods and interdisciplinary collaboration were once again identified as essential for understanding ecological processes and environmental change.

Beyond methodological advances, the strengthening of local scientific capacities and sustainable research infrastructures and partnerships are also of vital importance. The various initiatives presented clearly how scientific innovation and collaboration can reinforce biodiversity research while supporting conservation and sustainable management efforts in the Congo Basin.

SESSION 3

Beyond Yangambi: regional initiatives and partnerships

The Green Heart of Africa Initiative: a primer for sustainable and transformative research for biodiversity, climate and people in the Congo Basin

Melita Vamberger, Maarten Van Steenberge, Radar Nishuli, François Mwangi Ngera, Jean-Marie Bushiri, Willo Mayo, Guy-Crispin Gembu, Klaas-Douwe Dijkstra, Filip Vandelook, Koko Bisimwa, Grace Jopaul Loubota Panzou, Yorick van Hoef & Raffael Ernst
(Senckenberg, RBINS and partners)

Summary

The presentation introduced the Green Heart of Africa (GHoA) initiative as an emerging Afro-European framework aiming to strengthen biodiversity conservation, scientific research and sustainable development across the Congo Basin. Developed through collaboration between African and European research institutions and conservation partners, the initiative seeks to respond to growing demands from Central African governments and international partners to place biodiversity and climate considerations at the centre of development strategies. A key objective of GHoA is the creation of an integrated Biodiversity School and a harmonised monitoring network across the region, capitalising on existing infrastructures, collections and scientific partnerships. A central focus of the initiative is training the next generation of biodiversity professionals needed to implement conservation and sustainability policies on the ground. The initiative combines biodiversity research, capacity building and policy-relevant knowledge generation within a long-term vision captured by the principle "*Think BIG - Act LOCAL*", linking ambitious regional objectives with locally embedded research, monitoring and training activities.

Key messages

- The GHoA initiative aims to combine biodiversity conservation, climate action and sustainable development through long-term scientific partnerships.

- The initiative builds on existing infrastructures, collections, monitoring systems and academic networks across Africa and Europe rather than creating parallel structures.

- A central ambition is the establishment of an integrated Biodiversity School and a harmonised biodiversity monitoring network in the Congo Basin.

- The programme seeks to strengthen local and regional expertise through training, scholarships, fellowships and collaborative research opportunities.

- The initiative aligns with national and regional ambitions to integrate biodiversity and climate considerations into development strategies, while contributing to initiatives such as the DRC Green Corridor vision.

- The initiative proposes a long-term vision centred on five biodiversity hubs, five monitoring networks, 50 PhD positions and the training of approximately 1,000 Master's students over twelve years.

Challenges and perspectives

- The initiative has already established partnerships, pilot activities and formal collaborations, but still requires substantial long-term financial support for full implementation.

- Governance and ownership mechanisms will need to ensure shared leadership and sustainable institutional engagement among partners.

- Further clarification and coordination may be required regarding complementarities with related regional initiatives and conservation frameworks.

- Successful implementation will depend on maintaining strong collaboration between research institutions, governments and local stakeholders.

Discussion points

- Participants discussed questions related to governance, ownership and long-term sustainability of the initiative and associated pilot sites.

- The presenters emphasised that governance is intended to rely on shared ownership, formal agreements and strong involvement of national institutions and protected area authorities.

- Discussions also explored complementarities with other international initiatives in the Congo Basin, including questions regarding the respective scope and positioning of the Green Heart of Africa initiative and related programmes.

DRC biodiversity credit programme: the link with Yangambi and the Green Corridor

Jef Dupain
(Antwerp Zoo Foundation)

Summary

The presentation introduced an emerging biodiversity credit initiative developed in the DRC through pilot conservation landscapes centred on bonobo and okapi conservation. Framed as a Payment for Environmental Services (PES), the initiative places local communities at the centre of conservation by recognising their role as custodians of biodiversity and protected habitats. The pilot project in Lisoko combines Free, Prior and Informed Consent (FPIC), participatory mapping and micro-zoning to support locally defined land-use planning and coexistence between human activities and wildlife conservation. Communities co-design land-use plans through participatory mapping and micro-zoning exercises, and voluntarily commit to agreed conservation measures, including protection of high-integrity forest areas and zero tolerance toward poaching of fully protected species, in exchange for direct support and locally managed monitoring mechanisms. The presentation highlighted both the strong local interest generated by the pilot and the broader ambition to explore biodiversity credit approaches linked to the Green Corridor vision and community-led conservation.

Key messages

- The initiative explores biodiversity credits through a community-centred Payment for Ecosystem Services (PES) approach.
- Participatory mapping, micro-zoning and local land-use planning constitute core components of the mechanism.
- Local communities act as biodiversity custodians and commit to negotiated conservation measures through voluntary agreements.
- The pilot has generated growing interest among neighbouring communities and national stakeholders.
- The approach seeks to connect biodiversity conservation more directly with local livelihoods and long-term stewardship.
- A core principle of the mechanism is that conservation benefits should be transferred directly to local biodiversity custodians through transparent governance arrangements.

Challenges and perspectives

- Developing robust monitoring, reporting and verification systems remains a major challenge, particularly while ensuring affordable and locally managed approaches.

- Establishing appropriate governance, legal and certification frameworks remains necessary to clarify ownership, accountability and the positioning of biodiversity credits within broader conservation financing mechanisms.

- Long-term sustainability will depend on securing durable financing mechanisms and maintaining stakeholder confidence in the system.

- Ensuring that financial benefits effectively reach local communities while avoiding excessive intermediaries and internal governance conflicts remains a critical challenge.

Discussion points

- Participants discussed whether the mechanism should be understood as biodiversity credits, species-specific biodiversity certificates or a broader Payment for Ecosystem Services arrangement.

- Questions were raised regarding monitoring costs, verification systems and how to address external events or social dynamics that may influence conservation outcomes.

- Discussions also highlighted challenges related to long-term scalability, community governance and equitable benefit-sharing within participating communities.

From logging to living forests: the CFT - Limbali Carbon Company (LCC) transition in Tshopo, DRC

Anne Laudisoit, Dany Boketsu, Natasha Sanguinetti, Assumani Mula, Beverly Yanguile & Karim Ammacha
(University of Antwerp and Limbali Carbon Company)

Summary

The presentation introduced the ongoing transition of the former Compagnie Forestière et de Transformation (CFT), now Limbali Carbon Company (LCC), from industrial logging toward conservation and regenerative landscape management in Tshopo Province. Located within a strategic section of the Green Corridor between Yangambi, the Okapi Faunal Reserve and Maiko National Park, the concession covers approximately 467,000 hectares and supports approximately 75,000 inhabitants. Since the cessation of logging activities in 2023, LCC has shifted toward a conservation-oriented model based on climate finance, biodiversity conservation and community-centred development, under long-term conservation agreements that formally exclude a return to industrial timber extraction. Through participatory planning and collaboration with local communities, the initiative seeks to co-develop conservation and restoration strategies while exploring alternative livelihood options and new forms of biodiversity-compatible land use. The presentation emphasised both the exceptional ecological potential of the landscape and the opportunity to establish long-term scientific and conservation partnerships in a largely understudied region.

Key messages

- The LCC transition represents a shift from timber extraction toward long-term conservation and regenerative land-use management through formally gazetted conservation concessions.
- The concession occupies a strategic position within the Green Corridor and contains extensive relatively intact Limbali-dominated forests.
- Recent surveys documented diverse mammal communities, including chimpanzees, several Cercopithecus species and forest ungulates such as duikers, while the occurrence of species such as okapi and bongo requires further verification.
- The landscape offers exceptional opportunities for long-term research, biodiversity monitoring, student training and scientific partnerships due to its accessibility, ecological integrity and limited historical biological study.
- The initiative promotes collaboration, data sharing and digitisation to support adaptive management and long-term ecological monitoring.

Challenges and perspectives

- The transition from logging to conservation remains recent and requires the establishment of biological expertise, biodiversity baselines, monitoring systems and long-term management frameworks.

- Rapid demographic growth and infrastructure expansion around Kisangani may increase future pressure on the landscape.

- Scientific baselines remain incomplete, highlighting the need for further biodiversity inventories and long-term ecological studies.

- The success of the initiative will depend on sustained partnerships, transparent data systems and viable conservation-compatible economic models.

Discussion points

- Participants discussed preliminary indications of the presence of emblematic species, including possible evidence of okapi, while emphasising the need for further verification and inventories.

- The presentation generated interest regarding opportunities for research collaboration and the development of long-term scientific activities within the concession.

- The importance of strengthening biodiversity data collection and securing accessible data systems for future management and monitoring was also emphasised.

-

Les Arbres d'Afrique Centrale, tome I : familles de A à F

Raphaël Blervacq
(Nature+ ASBL, Gembloux, Belgium)

Summary

The presentation introduced *Trees of Central Africa, Volume I*, a new reference guide produced through collaboration between Gembloux Agro-Bio Tech, Nature+ ASBL, Meise Botanic Garden and numerous African and European partners. Designed to support tree identification and sustainable forest management in Central Africa, the publication addresses a longstanding need for an accessible, comprehensive and richly illustrated synthesis of the region's arboreal diversity. The guide covers all tree species reaching at least 10 cm diameter within lowland and submontane moist forests of Central Africa and integrates updated taxonomic knowledge with practical field information. Beyond species identification, the work documents ecological characteristics, habitats, phenology, conservation status, local uses and exploitation practices, thereby serving both scientific and operational purposes. The presentation emphasised the collaborative nature of the project and highlighted its open-access availability as well as ongoing efforts toward future volumes and possible digital developments.

Key messages

- *Trees of Central Africa, Volume I* provides a comprehensive and illustrated reference for tree identification and management in Central African moist forests.
- The publication describes 863 species belonging to 39 botanical families (from A to F) and incorporates updated taxonomic information.
- The guide combines identification tools with information on ecology, phenology, wildlife interactions, symbiotic associations, conservation status, uses and modes of exploitation.
- The work was developed through extensive collaboration between northern and southern institutions, involving botanists, forest engineers, taxonomists and field practitioners.
- The book is freely available online and forms part of a longer-term effort, with additional volumes already underway.

Challenges and perspectives

- Completing future volumes will require continued collaboration among partners and experts. Future developments may include additional digital tools and applications to facilitate field identification and wider accessibility.

- The continuation of subsequent volumes will depend on long-term institutional collaboration and financial support.

- Expanding links between botanical reference works and digital identification platforms may create new opportunities for biodiversity monitoring and education.

Discussion points

- Participants discussed the availability of digital versions and welcomed the open-access dissemination of the publication.

- The potential development of complementary digital applications and interactions with platforms such as PlantNet was also raised during the discussion.

Enabel programmes and action-research initiatives in the DRC

Jules Mayaux & Xavier Tezzo .
(Enabel, Belgium)

Summary

The presentation provided an overview of Enabel's programmes and action-research initiatives in the DRC, with particular attention to sustainable food systems and natural resources management. As Belgium's development agency, Enabel operates through implementation partnerships and collaborative programmes supported by multiple funding sources and partners. Within the DRC, activities cover several provinces and address themes including agroecological transition, agricultural training, value chain development, governance and biodiversity-related natural resource management. Increasing emphasis is placed on action-research approaches, with a number of initiatives conducted in collaboration with Belgian, Congolese and other research partners. The presentation highlighted both the breadth of Enabel's operational and future learning questions related to agroecology, land issues, natural resource management and Green Corridor governance.

Key messages

- Enabel implements a broad portfolio of development programmes in the DRC, combining food systems, agriculture and natural resource management objectives.
- Agroecological transition, agricultural training and value-chain development constitute important components of the portfolio.
- Action-research increasingly supports programme implementation through collaboration with universities and research institutions.
- Enabel works through partnerships with Belgian, Congolese and international institutions and can engage with a wide range of publicly funded research actors.
- Biodiversity and natural resource management are increasingly represented within the portfolio.

Challenges and perspectives

- Future learning activities will explore how agricultural extension services can support the adoption of agroecological practices.
- Future learning initiatives will focus on agroecological transitions, agricultural extension services, land governance and sustainable natural resource management.
- Specific learning questions concern community participation in Green Corridor governance and the sustainability of PSE and community investments after project completion.
- Additional learning questions concern monitoring and evaluation approaches

for agroecological transitions and the effects of agricultural and agroforestry models on land governance.

- A revision of the DRC portfolio is currently underway and may influence future geographic priorities and interventions.

Session 3 conclusion

The third session highlighted the growing convergence between biodiversity conservation, climate research, sustainable development and innovative partnership models in the Congo Basin. A common message clearly emerged: addressing current environmental challenges requires not only scientific knowledge, but also effective governance systems, long-term institutional collaboration and sustainable financing mechanisms.

A diversity of complementary approaches was evident, ranging from biodiversity monitoring networks, scientific reference tools and action-research programmes to conservation financing initiatives and landscape-scale conservation transitions. Together, these initiatives illustrated how biodiversity conservation is increasingly being linked to local livelihoods, sustainable resource management and evidence-based decision-making.

Once more there was an emphasis on the importance of collaboration, capacity strengthening and knowledge sharing among research institutions, development actors, conservation practitioners and local communities. However, important challenges remain regarding governance, equitable benefit-sharing, long-term funding and the translation of ambitious visions into durable action on the ground.

Overall, the session demonstrated that conserving biodiversity in the Congo Basin is not only a scientific or environmental challenge, but also a social, institutional and economic endeavour requiring sustained partnerships and locally grounded solutions.

Panel discussion

Introduction to the panel

The panel discussion brought together representatives from research, policy and conservation practice to reflect on the future of biodiversity research and conservation in the Congo Basin. Moderated by CEBioS (RBINS), the panel included Annemarie Van der Avort (DGD), Steven Dessein (MBG), Onésime Mubenga (CSB-UNIKIS), Vivien Bidjo (UNIKIS, ULB), Anne Laudisoit (UA, LCC) and Wannes Hubau (AM, UGent). The discussion was organised around two guiding questions addressing the role of science in biodiversity conservation and decision-making, as well as future directions for conservation and research initiatives beyond Yangambi. The moderated discussion was followed by exchanges with participants, allowing additional themes related to research funding, interdisciplinarity and community engagement to emerge.

Key messages emerging from Question 1

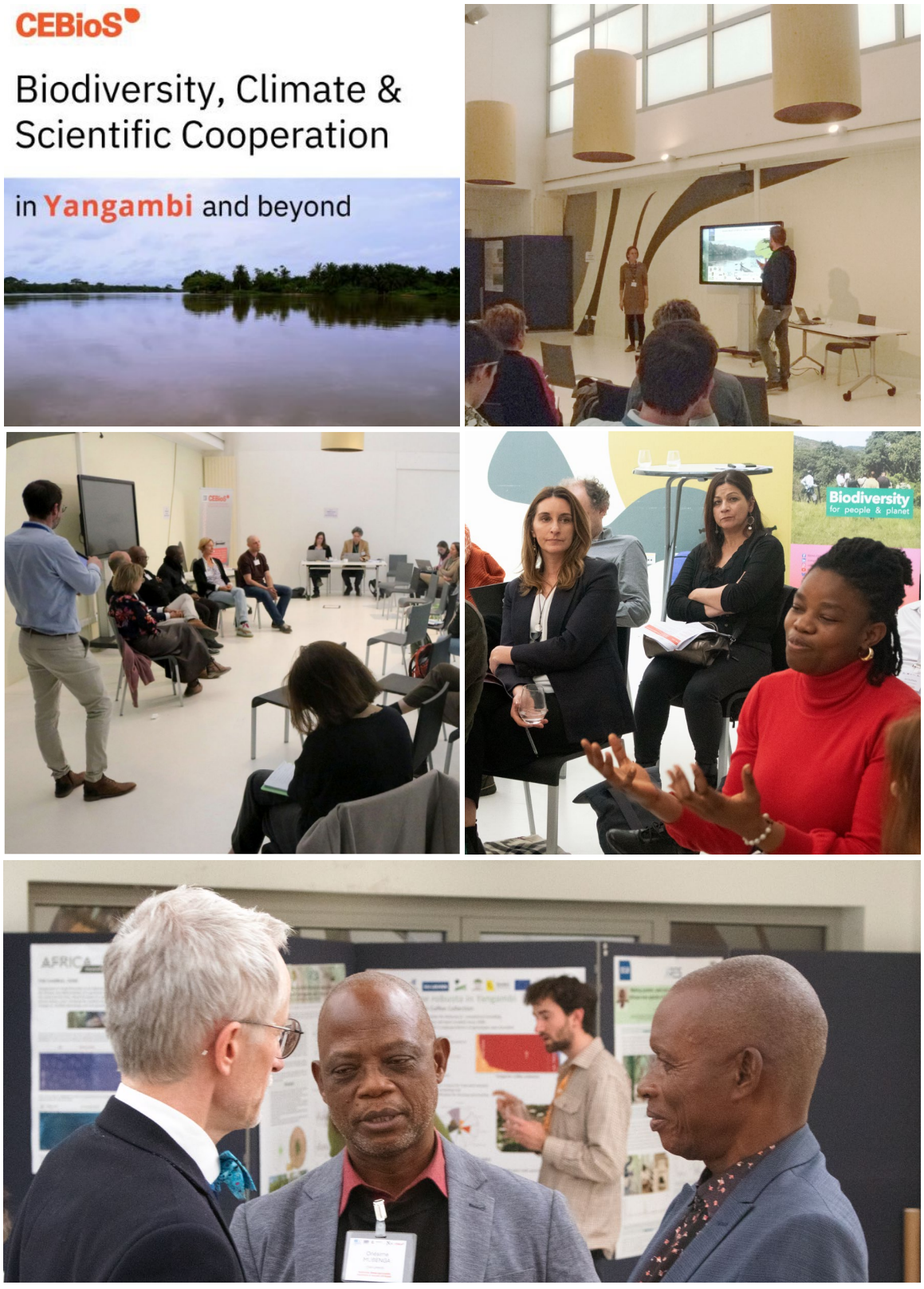
"What role should science play in shaping biodiversity conservation and policy in the DRC, from Yangambi to the national level?"

In response to the first question, there was a broad consensus among the panel regarding the essential role of science in biodiversity conservation and public decision-making. Panellists emphasised that scientific evidence remains fundamental for informing policies, monitoring environmental change and assessing the impacts of public decisions. However, despite its fundamental role, scientific knowledge remains incomplete. It requires continuous investment in research and long-term monitoring to fill in the gaps.

From a policy perspective, it is vital to maintain strong scientific input in decision-making processes and to ensure that complex technical information can be translated into accessible and actionable policy recommendations.

Several speakers stressed that research should not only generate knowledge but also function as an early-warning system capable of identifying emerging environmental risks and helping decision-makers anticipate future challenges. In particular, research must remain not only relevant to national priorities but also understandable to local communities. Scientific findings often fail to generate impact when they are insufficiently adapted to local realities or communicated in inaccessible ways.

At the same time, panellists acknowledged growing tensions surrounding the increasing number of hats researchers are expected to wear. More and more, scientists are expected to act not only as researchers but also as communicators, diplomats and intermediaries between science and policy. This necessitates stronger science-policy interfaces and dedicated mechanisms capable of facilitating dialogue between researchers, public authorities and civil society.


CEBioS
Biodiversity, Climate &
Scientific Cooperation
in Yangambi and beyond
Biodiversity
for people & planet

Scientific gaps were also a topic of discussion. Despite important progress in recent decades, the Congo Basin remains comparatively underexplored and still lacks critical baseline biodiversity data. Conservation research, long-term ecological monitoring, and both ex situ and in situ conservation approaches continue to be vital in the effort to close these gaps. There is also a need to improve our understanding of ecosystem functioning, including sustainable agricultural and agroforestry systems associated with emerging landscape initiatives such as the Green Corridor.

Key messages emerging from Question 2

"Beyond Yangambi, and based on your field experience in the DRC, what are the most promising directions for new conservation and research initiatives today?"

In response to the second question on future research opportunities beyond Yangambi, panellists stressed that large areas of the DRC remain insufficiently studied. The existence of major ecological and biogeographical knowledge gaps was again highlighted.

In particular there are large blind spots in the underexplored landscapes in north-eastern DRC, including Garamba, Ituri and Aru, where updated inventories of flora and fauna remain urgently needed. These regions are ecologically important transition zones that may host distinctive biological communities and provide valuable insights into species movements, ecological connectivity and historical biogeography.

It will be vital to move beyond traditional research sites and invest in ecological and geographical "blind spots". Future priorities include biodiversity inventories, faunal and floral surveys, genetic analyses linking populations across regions, and increased attention to ethnobotanical and ethnozoological approaches capable of better integrating human-nature relationships.

The discussion also highlighted the growing importance of research on ecological transitions and forest regeneration. While mature forests have long received scientific attention, younger and regenerating forests are increasingly recognised as essential yet insufficiently studied systems, particularly in the context of climate change and changing land-use dynamics.

Throughout the discussion, collaboration and data sharing emerged as recurring priorities. A greater openness between institutions, stronger inclusion of local universities and more coordinated research efforts capable of reducing fragmentation and improving conservation effectiveness are also called for in future initiatives.

Important elements emerging from exchanges with participants

Several broader themes emerged in the course of the panel.

A first recurring theme concerned the mismatch between ecological processes and conventional project or funding cycles. Participants noted that meaningful biodiversity monitoring and ecosystem research often require decades of sustained observation, while most research and development projects operate on shorter time horizons. Long-term programmes and diversified funding partnerships are therefore critical for maintaining continuity and producing lasting scientific results.

A second theme related to interdisciplinarity and the role of social sciences. It was repeatedly emphasised that conservation and biodiversity research cannot rely exclusively on ecological expertise. Sociological, anthropological and socio-ecological perspectives can be essential for understanding local realities, improving communication and ensuring that conservation initiatives remain socially grounded. Social sciences are too often incorporated late in project design rather than being integrated from the outset.

The discussion also touched upon strategic coordination and the potential role of broader national visions such as the Green Corridor. While participants recognised the promise of such frameworks for reducing fragmentation between projects, questions remained regarding communication, governance and shared understanding of these initiatives among stakeholders.

Finally, relations with local communities are vital. Practical experiences from field research showed the importance of involving local people directly in research activities and data collection. Beyond facilitating logistics, such participation is essential for building trust, improving local ownership and strengthening the long-term sustainability of research and conservation interventions.

Session conclusion

The panel discussion highlighted both the progress achieved and the significant challenges that remain for biodiversity research and conservation in the Congo Basin. One thing became clear: science must remain rigorous and independent while becoming increasingly connected to policy processes and governance, local communities and civil society, and long-term development trajectories.

The discussion reaffirmed the importance of sustained research infrastructures, stronger partnerships and interdisciplinary approaches capable of linking ecological, social and governance dimensions. Beyond identifying research gaps, the panel underscored that durable conservation depends not only on better scientific knowledge, but also on stronger dialogue, adaptive institutions and long-term collaboration among researchers, policy makers and communities.

Closing reflections from panellists

The panel concluded with brief reflections from participants, who appreciated the opportunity to exchange ideas and stressed the importance of maintaining collaborative momentum.

Several speakers expressed gratitude for the opportunity to bring together researchers, practitioners and institutions around shared biodiversity and conservation challenges. The value of scientific cooperation and dialogue was clear, particularly in a context where development cooperation and environmental action face increasing constraints.

Occasions such as this event, which allow for both the exchange of knowledge and perspectives on conservation as well as the strengthening of scientific collaboration between institutions and countries are increasingly important. Hopefully, future opportunities will allow for more partnerships across disciplines and sectors to be created, to reinforce biodiversity research and conservation efforts, both in the Congo Basin and beyond.

Intervention from BELSPO and UNESCO

Brigitte Decadt from BELSPO

- The workshop was highlighted as a valuable opportunity to strengthen connections between researchers, institutions and funding agencies, reinforcing the idea that greater collaboration can strengthen scientific cooperation and impact.

- Stronger coordination among Belgian and African partners was encouraged, in line with broader Team Belgium and Team Europe approaches supporting science, innovation and sustainable development.

- Particular emphasis was placed on science diplomacy and on strengthening science-policy interfaces, including efforts to translate scientific knowledge into usable services, indicators and decision-support tools.

- BELSPO welcomed the increasing attention given to applied biodiversity challenges, including ecosystem services, biodiversity indicators, value chains and sustainable natural resource management.

- Research infrastructures, monitoring systems and centres of excellence such as Yangambi and the CSB were highlighted as important assets with potential for stronger connections to regional, European and international initiatives.

- The importance of multidisciplinary and multi-stakeholder approaches was emphasised, including collaboration between researchers, policy-makers, local communities and the private sector.

- Initiatives such as the Yangambi Mega-Transect, the carbon flux tower and regional technical exchange platforms were highlighted as examples of collaborative mechanisms fostering knowledge sharing, scientific cooperation and multidisciplinary exchange.

Kelly Cerialo from UNESCO

- UNESCO expressed strong support for ongoing biodiversity research and conservation initiatives in Yangambi and the wider Congo Basin, and reaffirmed its willingness to continue collaborating with national and international partners.

- The Green Corridor concept was presented as a promising initiative, while acknowledging that its implementation is likely to face important challenges, particularly in ensuring broad stakeholder participation and local ownership.

- The importance of maintaining strong links with local communities was emphasised as a key condition for the success of conservation and development initiatives.

- Effective conservation and sustainable development require strong collaboration across institutions, sectors and disciplines, including greater integration of social sciences alongside natural sciences. Maintaining long-term projects and partnerships was identified as essential to ensure continuity and lasting impact.

- Particular emphasis was placed on the need to communicate scientific results and ensure that knowledge reaches decision-makers, local stakeholders and the communities most directly concerned.

- UNESCO highlighted opportunities for strengthened regional cooperation and expressed interest in exploring the development of additional Biosphere Reserve initiatives in the region.

CEBioS