

# Rwanda's Biodiversity Heritage

THE CENTER OF EXCELLENCE IN BIODIVERSITY  
AND NATURAL RESOURCE MANAGEMENT (COEB)

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Welcome to all of you taking time to read this newsletter. We have had a very busy June 2021, with the biggest news being completion of a feasibility study following the CoEB application for category 2 status under the auspices of UNESCO. The application was supported by the Ministry of Education, Ministry of Environment, University of Rwanda and the Rwanda National Commission to UNESCO (CNRU). Thanks to the individuals including CoEB Research Associates, Research Fellows, students and partners who took their time to provide information to the feasibility study consultants...

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*continued...* We now await the UNESCO Executive Board review of our application in October for final decision of the General Conference in November 2021.

In addition to this big step, the Center has been working on several projects, including adaptive systematic water management, developing biological indicators for ecosystem monitoring, assessing the dual effects of climate change and Covid-19 on rural communities, and water bird counts to support monitoring of wetlands in Rwanda. In the pages below you will see what the Center and its nodes and partners have been busy with in the past few weeks. Enjoy and stay safe.

*Beth Kaplan*, Director of CoEB

## **Justice for Peace through Traditional Knowledge Systems and Conservation: Recognition, Revitalization and Reconciliation**

On 31 August 2020, UR joined the African Institute for Indigenous Knowledge Systems (AIKS) with the CoEB as its focal point. AIKS was established in 2020 at the University of KwaZulu-Natal, South Africa, and its reach spreads across the African continent.

To launch the establishment of AIKS in Rwanda, a 3-day workshop was held in Kigali, Rwanda on 16-18 June 2021 to bring together researchers, educators, students, and practitioners working in traditional knowledge. This event was a collaborative effort organized by CoEB and the Sheffield Institute for International Development (SIID) at the University of Sheffield (United Kingdom), who also funded the event. The workshop included speakers, panel discussions, trainings and interactive sessions designed to engage attendees, both in person and online, in a blended approach that was designed to be as inclusive and well-attended as possible while following Covid-19 guidelines for safety.

The first day of the workshop highlighted the importance of 'Respect and Recognition' for traditional knowledge systems (TKS) in order to achieve justice and peace. Kanyinke Sena from the Permanent Forum on Indigenous Issues/IUCN CEESP SC started the day as the keynote speaker stating that traditional knowledge faces many challenges in regard to policy, Western power, globalization, and a lack of recording. While acknowledging that these challenges create obstacles to preservation and protection of traditional knowledge, he emphasized the measures that can be taken to alleviate these challenges and bring about greater recognition and incorporation of TKS. Some solutions include the development of appropriate traditional knowledge policies and practices, establishing traditional knowledge resource centers, training, researching, and developing TK networks.

The second day revolved around the themes of 'Restore and Revitalize' and 'Reconcile'. Prof. Muxo Nkondo from the University of Kwazulu Natal opened the session as keynote speaker, stating that some of the biggest challenges concerning the conservation of TKS are lost connection, environmental degradation, and modern generations.

Throughout the day, a variety of speakers engaged the audience around the day's themes, sparking thoughtful questions and discussions. To conclude the day and honor the wealth of traditional knowledge present in Rwanda, demonstrators from the Azizi Life Center and Ifumba Y'Ubuzima provided information about traditional art and crafts and traditional medicine practices in Rwanda.

The final day of the workshop centered around training sessions geared towards building capacity for traditional knowledge research and providing a deeper understanding of some of the key challenges facing traditional knowledge practices. Virtual and in-person attendees were offered a selection of trainings, including: 1) 'Cultural Appropriation, another form of traditional knowledge extractivism' by Naomi Lanoi Letelo from the University of Nairobi,

Kenya; 2) 'Traditional Knowledge and Intellectual Property: Legal framework for protection and associated contextual issues' by Kellen Twinamatsiko from the Agriculture, Food Security and Nutrition department of the Rwanda Development Board, Rwanda; and 3) 'Research Methods and Approaches in Traditional Knowledge' by Mayashree Chinsamy from the University of Kwazulu Natal.

More than 40 participants attended the workshop in person and virtually. We had a multidisciplinary group, including Univ of Rwanda academic staff from many different Colleges and Departments, including medicine and health, social sciences, chemistry, biology, and pharmacy, as well as participants from African Leadership University, RDB and NGOs. We greatly hope this is just the beginning of a more collaborative, inclusive, and prosperous agenda for the study, practice, and protection of traditional knowledge in Rwanda. Nathan Taremwa, Lecturer & Research Associate at CoEB-UR, is the lead contact for the AIKS activities in Rwanda through CoEB. We are grateful to Dr Elaine Hsiao, former postdoc at University of Sheffield, Research Fellow at CoEB, and newly appointed faculty member at Kent State University, USA who enabled access to the funding and Profs Rosaleen Duffy and Dan Brockington from University of Sheffield, and to the team who organized the workshop: Nathan Taremwa, Elaine Hsiao, and Adrienne Chitayat.



Photo: Workshop held in Kigali, Rwanda at Onomo Hotel with in person and virtual attendees.

## National Herbarium of Rwanda:

The path to becoming a botany & plant conservation training center for higher learning institutions in Rwanda



The National Herbarium of Rwanda (NHR) is a national treasure of plant diversity, and strives to support biodiversity conservation, empower individuals and institutions to make science-driven decisions for land use planning and environmental sustainability, and provide valuable botanical information about Rwanda and the Albertine Rift region for present and future generations.

June was a busy month for NHR staff as they welcomed and trained students from the Integrated

Polytechnic Regional College (IPRC) Kitabi and the University of Rwanda (UR) biology department Botany and Conservation option. On 23<sup>rd</sup> June, year-3 students from the Botany and conservation option at UR were accompanied by Alphonse Nzarora, a lecturer at UR and CoEB Research Associate, while they visited NHR. In the field and at the NHR facility, they learned about the materials and techniques necessary for collecting and preserving plant samples for the Herbarium.

Separately, over the course of four days, students from IPRC Kitabi visited NHR. IPRC Kitabi offers courses in Forest Resources Management using a new training approach known as Competence Based Training/Assessment (CBT/A). This approach requires practical sessions in the field of tree systematics, and IPRC Kitabi reached out to NHR to request an opportunity to provide training to their students and introduce them to the valuable resources offered at NHR. During their visits, NHR provided students with access to NHR facilities, equipment, and the botanical collection. Similar to UR students, IPRC Kitabi students were trained in the proper techniques used for collection and preservation of herbarium plant samples. In attendance were 40 students that were divided into two groups with two lectures accompanying them. Students were trained on June 25 & 28 and were then tested on the material July 01 & 02. This visit proved not only to be a great opportunity for the students to receive hands on training applicable to their studies, but was a chance for NHR to solidify its connection IPRC Kitabi, a CoEB node, and showcase the resources that it has available for education and research.

# UNESCO's MAB Programme 50<sup>th</sup> Anniversary:

## Engaging youth in research innovation



On 2nd June, CoEB celebrated the 50th Anniversary of UNESCO's MAB (Man and Biosphere) Programme in Rwanda with a workshop themed "Creating a momentum for Biosphere Reserves for Youth by Youth". CoEB Deputy Director Dr. Venuste Nsengimana gave a presentation on "Engagement of youth in developing research innovation: CoEB's case studies".

In his presentation, Dr. Venuste emphasized that by pushing students to think critically and innovatively, and to take initiative

and try new things, you can engage them in research innovation. As a case study, he focused on the techniques employed by CoEB to engage youth in this endeavor. Some of strategies that were discussed that CoEB utilizes to build capacity include offering internships and trainings to students and post-graduates, summer schools and workshops, and stand-alone courses. "We have about 20 different projects running and every opportunity we have, we get BSc, MSc and PhD students involved – as research assistants, as participants in trainings, as participants in seminars and research presentations" Dr Venuste said.

By learning about new tools like iNaturalist (<https://www.inaturalist.org/>) and utilizing CoEB's vast network of partners and nodes, students are provided a diversity of opportunities they can use to fit their needs. Furthermore, CoEB does public speaking engagements in primary and secondary schools about biodiversity and environmental conservation, hosts school groups in the Arboretum for nature walks and visits to the NHR to inspire youth, and provides active teacher training to encourage critical thinking skills among students, especially those in the sciences.

"We bring together BSc students with MSc and PhD students, with visiting researchers from various countries, and our UR academic staff and interns for exciting interactions and new ways of thinking, we embrace interdisciplinary approaches to studying biodiversity science and conservation problems – we work with biologists, chemists, IT, GIS spatial analysis, social scientists, anthropologists, policy analysts, medical doctors...our center exposes students to different cultures and ways of knowing. We provide networking opportunities for youth to learn about various research approaches and opportunities."

# Climate Policy Summer Course:

## A Global, Transdisciplinary Approach for the Future



The Schar School of Policy and Government at George Mason University (USA) has partnered with the CoEB in the College of Science and Technology at UR to bring together American and Rwandan Master's students for a fully immersive virtual study-abroad program. The program, called "Climate Policy: A Global, Transdisciplinary Approach for the Future", features TED-style talks from leading climate experts from around the world, as well as cultural exchanges with young climate activists, entrepreneurs, and innovators.

The 20 UR students who will attend the course and receive a stipend represent a diverse group of students, with a variety of backgrounds and interests, in recognition that climate policy has a greater potential for success when viewed from a multi-disciplinary perspective. Students who will attend the course come from different Master's of Science programs at UR, including biodiversity conservation and natural resource management, energy economics, atmospheric and climate sciences, renewable energy engineering, agroforestry and soil management, environmental chemistry, and geo-informatics and sustainable development.

UR students, and their counterparts in the USA will hear from guest speakers from all over the world. The list of speakers includes top climate thought leaders and visionaries who aim to provide students with a global perspective of climate change, a greater understanding of some of the most pressing policy problems facing governments today, and a look at new innovations and strategies being discussed for the future of climate policy.

The sessions will be held over the course of two weekends (July 24-25 and July 31-August 1), with an orientation on July 11<sup>th</sup>. A final session to wrap up the course will take place on August 8<sup>th</sup>.

For more details about the course, what partners and climate change experts say and, access to the partial list of speakers and topics, [click here](#).

# CoEB Seminar Series Reaches New Heights



Continuing to engage students, researchers, and professionals from around the world, the CoEB seminar series hosted a diversity of topics during June 2021. Three seminars were provided, the first bringing together three primate researchers working in Rwanda. This seminar included Axelle Kamanzi Shimwa, a PhD candidate at George Washington University (GW) (USA), who presented on “Variation in the acquisition of dietary independence in wild Virunga mountain gorillas”, Sylvain Nyandwi, a PhD candidate at GW, who presented on “Female Chimpanzee Behavior and Reproduction in Rwandan Forest Fragments”, and Deogratias Tuyisingize, a PhD candidate at UR, who presented on “Feeding and reproduction patterns in golden monkeys *Cercopithecus mitis kandti* in Rwanda”.

The second seminar of the month was provided by Bonaventure Ntirugulirwa a PhD candidate studying in a joint program at UR and the University of Gothenburg. He presented on “The suitability of native tree species in different regions of Rwanda with respect to climate change”. Last, but certainly not least, Dr Mitchell Thomashow, a writer, educator and environmentalist, gave a presentation called “To Know the World: A New Vision for Environmental Learning”.

Video recordings of the CoEB Seminar Series can be accessed here:

<https://www.youtube.com/channel/UCdr8ykoxB00DI7ywxpvBuWA>

**June Speakers: Axelle Kamanzi Shimwa, Sylvain Nyandwi, Deogratias Tuyisingize, Bonaventure Ntirugulirwa and Mitchell Thomashow.**



# World Environment Day:

## Ecosystem restoration!



World Environment Day (WED) brought together 200 students from the UR - Huye Campus. The celebration brought together a diversity of esteemed presenters from UR including the Principal's delegate (Dean, School of Arts & Languages), as well as academic staff that included Prof. Donat Nsabimana, Dr. Margueritte Mukangango, Prof Beth Kaplin and Mapendo Mindje from the School of Forestry and the College of Agriculture, Animal Sciences and Veterinary Medicine. The day was marked by the presence of Vice Mayor in charge of Finance and the District environment officer

from Huye district, as well as the the Director of CoeB, Prof. Beth Kaplin, and lecturers from the Department of Forestry and Nature conservation and Biology.

WED is an annual event where stakeholders discuss what has been achieved in safeguarding the environment, calling upon everyone to be part of the solutions to mitigate threats exerted on the mother planet. The Rwanda Environment Management Authority coordinated this event nationally and all UR campuses are invited to prepare public events. The CoEB was invited to organize the event for Huye campus.

At Huye campus, the day began by introducing the event concept and the importance of discussing and identifying the challenges threatening the environment and solutions necessary for the future. A number of the presentations focused on environmental restoration, which was the theme of the year. Presentations included "Forest restoration for climate change" and "Wetlands restoration: the implication of research on biological indicators to monitor wetlands' health and the benefits of restoring Agro ecological systems".

The Vice mayor of Huye presented about the various endeavors designed to restore degraded sites like wetlands and forests that were achieved within Huye District. Additionally, he discussed the conservation and environmental ambitions of Huye District for the future.

Dean Télesphore Ngarambe also spoke and acknowledged that earth's protection can and should involve everyone, not only people studying and working in environmental programs. He stressed the importance of tackling environmental issues with a cross cutting program that concerns all people because the services we receive as individuals, communities, and societies from the environment are priceless. Thus the importance of protection is for the sake of nature and ourselves.



## Post-graduate Highlights: Venant Nzibaza

Studying the role of riparian zones for climate change resilience in communities around Lake Kibare, Kayonya, Rwanda.



In each issue of our newsletter, we profile a Rwandan postgraduate student. In this issue meet **Venant Nzibaza** who is a Research Fellow at the CoEB and currently pursuing a Master's degree in Biodiversity Conservation and Natural Resource Management at UR and a Master's degree in Biogeosciences at the University of Koblenz-Landau (Germany). His research focuses on water quality and climate change adaptation. He is studying the role of the riparian zone for climate change resilience in communities around Lake Rwakibare, Kayonya.

Additionally, he is also working on a research project focused on the integration of biodiversity indicators for water quality assessment and monitoring in Rwanda.

### **What do you think about climate change mitigation and adaptation in Rwanda?**

While the global contribution of Rwanda to greenhouse gases emission is still relatively small, its effort to reduce its greenhouse gases is outstanding. For example, Rwanda was the first country among the least developed countries to submit the second Nationally Determined Contributions under the Paris Agreement. Rwanda also ratified many other multilateral environmental agreements that integrate climate change mitigation and is making an effort to help its people adapt to climate change through ecosystem restoration, agroforestry, and water quality monitoring, just to name a few.

### **Why is it important for Rwanda to put in place climate change adaptation measures?**

Rwanda is vulnerable to climate change effects because of its topography. As the country of a "thousand hills", its land is prone to erosion. Secondly, Rwanda's reliance on rain-fed agriculture requires a delicate balance of climate conditions that is dictated by an optimum level of precipitation for adequate agricultural production. Adaptation strategies are, therefore, needed to reduce Rwanda's vulnerability.

### **What message do you have for the general public about climate change mitigation and adaptation?**

We have only one decade to act on climate change. Beyond that the human impact on earth's climate will be almost irreversible. The best time to act is today. Similarly important, we should be aware that climate change is already affecting us today. People are being displaced because of floods and erosion and others are experiencing food shortages that are the result of erratic rainfall. This is a good time for us to restore our landscapes and increase their resilience to climate change, which in turn, will enhance people's ability to succeed in the future.

## News From Our Nodes & Partners:

### International Gorilla Conservation Programme (IGCP) has a new initiative: Be Gorilla Friendly™

#### Take the Pledge and Help Mountain Gorillas Stay Safe!

The Gorilla Friendly™ Pledge campaign was initiated by the International Gorilla Conservation Programme (IGCP) – a coalition of Conservation International, Fauna & Flora International and WWF – and Wildlife Friendly Enterprise Network (WFEN) as a way to raise awareness and bring about compliance with established gorilla visitation rules and regulations meant to ensure a rewarding experience while minimizing risks of disease transmission to and behavior change of the gorillas. The Gorilla Friendly™ Pledge is an online campaign aimed at encouraging all those planning to visit the mountain gorillas - and even those who are not! - to pledge to observe gorilla tourism rules during treks and to share feedback on their trekking experience after the visit through the Gorilla Friendly™ Pledge website - [gorillafriendly.org](http://gorillafriendly.org).



Tourism brings people and great apes into close contact, and, because of their closely matched DNA mountain gorillas are susceptible to human diseases like coronaviruses. Evidence shows that mountain gorillas can contract COVID-19 with specific stories of captive gorillas in zoos contracting COVID-19 from asymptomatic keepers. There is therefore urgent need to protect the endangered primates for should a novel disease like COVID-19 circulate in their fragile populations it can cause significant loss. Among great apes in the wild, mountain gorillas are perhaps uniquely exposed to the emerging coronavirus as a majority of mountain gorillas are habituated to humans for the purposes of tourism and research. Adherence by tourists and everyone visiting the great apes to the IUCN Best Practice Guidelines for Great Ape Tourism is therefore critical.

Based on the IUCN best practice guidelines for great ape tourism, there are ten key things that you can Pledge to do to help including not trekking gorillas if you feel ill, keeping your distance from gorillas at all times, and wearing and disposing of a face mask properly. You can choose to be a responsible tourist today and contribute to the safety, protection and survival of mountain gorillas by pledging to comply to the gorilla visitation rules and regulations. Be Gorilla Friendly™, take the pledge- [gorillafriendly.org](http://gorillafriendly.org). Also, whether you took the Pledge or not, share your tracking experience using the After Your Visit and [help conservationists and park managers to strengthen measures that safeguard and secure the future for mountain gorillas as well as improve the tourism experience](#). The Gorilla Friendly™ Pledge campaign was initiated in 2014 and re-launched in 2020, and has been endorsed by fourteen (and counting!) other institutions as a way of raising awareness and willing compliance of established gorilla visitation rules and regulations. [To learn more about the Gorilla Friendly™ Pledge initiative](#), write to [info@igcp.org](mailto:info@igcp.org).

## **The Dian Fossey Gorilla Fund International (DFGFI), another node of CoEB, is developing its Herbarium**

The DFGFI/Karisoke Research Center herbarium is digitizing its specimens and with support from the CoEB Research Fellow Dr Michael Thomas, an expert in Ethnobotany, Biocultural and Museum Management, the herbarium has recently published 1144 new data records. The National Herbarium of Rwanda has an online specimen data portal where 18801 records are currently published online.

## **IPRC Kitabi, a node of CoEB provides field training for its students**

The COEB hosted students from the Integrated Polytechnic Regional College (IPRC) Kitabi for field and herbarium training.

The Government of Rwanda is committed to Centers of Excellence that will ensure research is available to meet national data needs for evidence-based decision making. University of Rwanda hosts several Centers which drive academic research and innovation in support of policy and management. The CoEB was formally established at University of Rwanda in 2016 and works across Colleges, Schools and departments. It engages with environmental scientists, biologists, social scientists, policy scientists, gender experts, ecological economists, anthropologists, chemists, pharmacists, molecular biologists, foresters, agronomists, climate scientists, and many others. We work with youth and seniors, with government and private sector, communities, practitioners, NGOs and international partners to meet our mission.

We are developing opportunities for youth and early career researchers to gain experience, we provide data for decision-makers, we are creating an academic/research culture, and making it enjoyable. We are creating a dynamic and welcoming atmosphere for academics and practitioners, we want science and research to be exciting and rewarding, and we are driven to contribute to sustainable development goals and achievement of climate resiliency and biodiversity conservation for Rwanda and the region.

## **Contact us!**



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