

CEBIOS Capacities for Biodiversity and Sustainable Development

LA BIODIVERSITE ET LE DEVELOPPEMENT, UN HERITAGE GLOBAL BIODIVERSITEIT EN ONTWIKKELING: ERFGOED OPWERELDSCHAAL

Abstract Booklet

Martina



CEBioS[•]

The CEBioS programme (http://cebios.naturalsciences.be/), funded by the Belgian Development Cooperation (DGD, D.2.4.), supports capacity building in partner countries of the Belgian cooperation in the fields of scientific knowledge of biodiversity, habitat monitoring and ecosystem services, digital information collection and sharing (clearing house mechanism as a digital instrument for policy) and awareness raising, mainstreaming of biodiversity into development cooperation and international policy, MRV (Measuring, Reporting and Verification) and the Protocol of Nagoya.

Organizing Committee

- Hilde Eggermont (Belgian Biodiversity Platform)
- Luc Janssens de Bisthoven (CEBioS, Royal Belgian Institute of Natural Sciences)
- Francesca Lanata (Botanical Garden Meise)
- Eva November (Royal Museum for Central Africa)
- Anne-Julie Rochette (CEBioS, Royal Belgian Institute of Natural Sciences)
- Aline Van der Werf (Belspo)
- Maarten Vanhove (CEBioS, Royal Belgian Institute of Natural Sciences)



'Biodiversity and development, a global heritage' is a symposium organised on 26 November 2015 by the CEBioS programme, funded by the Belgian cooperation (DGD), and executed at the Royal Belgian Institute for Natural Sciences (RBINS).

It covers keynotes by some gifted invited speakers, as well as practitioner's stories by our own researchers and our partners (VLIR-UOS, ARES, KLIMOS, RMCA, Botanic Garden Meise, BELSPO, EU, The Shift, Belgian Biodiversity Platform, National Focal Point CBD) about the reasons why biodiversity in developing countries should be protected and managed in a sustainable way, how to do that, and why, we, as industrialised European countries, have a duty and an obligation to support this process.

At the end of the afternoon, a debate will highlight the main tensions between economy and biodiversity, development and nature conservation and offer further insights into this lively topic.

The lunch time, as well as the drink at the end and the poster/booth session offer you the possibility to network within your field of expertise, but also across sectors. Indeed, this symposium is meant as an awareness raising and rallying moment in view of the European year for development and the Sustainable Development Goals, freshly accepted at the United Nations General Assembly.

This event is meant to launch bridges, to be cross-sectoral, to bring together the federal research institutions, the universities, the NGOs, the private sector and the secondary education teachers in a lively dialogue around the need to save the biodiversity of the planet and in particular of developing countries, a metaphore for the support of life, essential for all of us and future generations.

I take also this opportunity to thank the DGD section D 2.4., 'Climate, Environment and Natural Resources', for their continuous support in this endeavour. This cooperation is part of the on-going effort to foster more coherence, complementarity and synergy of the Belgian actors in the field, and was, as part of the DGD environmental strategy, well appreciated by the last peer review of the OECD.

Sit back and enjoy!

Luc Janssens de Bisthoven Coordinator CEBioS programme (RBINS)





The Museum of Natural Sciences. Nature and dinosaurs.

The Museum of Natural Sciences in Brussels is home to the largest collection of dinosaurs in Europe. Not only can you gaze in awe at our enormous Iguanodon collection, but you can also discover a multitude of other extraordinary dinosaur fossils, such as *T. rex, Triceratops, Diplodocus* and many more.



Nature also means evolution; crustaceans, insects, minerals, mammals, etc. In short, the Museum is a brilliant place to discover and wonder at nature in all its facets. Furthermore, we try to keep pace with the needs of our contemporary public, meaning that all new or renovated rooms always offer insightful information for different levels of comprehension, and we also integrate displays

and interactive modules that appeal to children. And all this is always presented in 4 languages (Dutch, French, English and German).

In general people start their discovery tour of our Museum in the beautiful **Gallery of the Dinosaurs**, but there are many other collections to be found in the Museum's other rooms. A good example is the **Shell Hall**, where we will start our tour especially for this occasion. We will pass by the **Gallery of Evolution**, where we invite you on an unforgettable journey, showing you no fewer than 600 fossils and 400 animal exhibits, explaining all about evolution and how living creatures change over time...

From the Gallery of Evolution you just have to follow the **Poles tunnel**, in which we represent the different fauna on the North and the South Poles, to reach the **Whales Hall**, where you will be confronted with the fossils of these most splendid species of mammal.

Down on ground level again, we offer you two other amazing rooms: The first hall where we will pass through is **BiodiverCITY**, the place to learn everything about the biodiversity you find in cities and urbanized environments. Next to it you'll find our room **"250 years of natural sciences**", where we show other very important collection pieces like the Ishango bone, the oldest



collection of Russian minerals, a specimen of the now extinct **thylacine**, the Mammoth of Lier... And besides all this, the Museum has a lot more to offer... One floor below the Whales Halle you can find a fine selection of our collection of mammals in the **Mammals** room. But don't delay ... these two halls will not exist much longer in their current setting and layout. In mid-April they will close their doors in preparation for the renovation of this part of the Museum, which will reopen in 2017 - 2018 with the glorious **Gallery of the Living Planet**. And don't forget to visit our Minerals room, next to our Dinoshop and the Insect room with Vivarium.



PROGRAMME

09.00 – 09.30 Registration / Welcome coffee

09.30 – 11.00 SESSION 1

Welcoming remarks and introduction by:

- Mrs. Camille Pisani, director general of the Royal Belgian Institute of Natural Sciences
- · Luc Janssens de Bisthoven (Coordinator of the CEBioS programme, RBINS)
- Alexander De Croo (Deputy prime minister and minister of Development Cooperation)

Examples of interventions by :

- The European Commission (Arnold Jacques de Dixmude)
- The Royal Belgian Institute of Natural Sciences (Patrick Grootaert and Roseline Beudels)
- · VLIR-UOS and ARES (Marie Anne Eurie Forio (VLIR-UOS) and Pierre Duez (ARES))
- Klimos (Bruno Verbist)
- The SHIFT (David Leyssens)

11.00 – 11.25 Coffee break / Poster session

11.25 – 12.35 SESSION 2

- Botanic Garden Meise (Francesca Lanata)
- Royal Museum for Central Africa (Eva November and Jos Snoeks)
- Fisheries and Global Warming: Impacts on Marine Ecosystems, Daniel Pauly (University of British Columbia, Canada)
- The Global Taxonomy Initiative, Marie-Lucie Susini (RBINS, CEBioS), Imane Rahmouni (Université Mohammed V- Souissi, Maroc) and Longin Ndayikeza (Université du Burundi, Faculté des Sciences)
- Plant genetic resources and crop protection, Yêyinou Laura Estelle Loko (Polytechnic University of Abomey, Benin)

12.35 – 13.45 Lunch / Poster session

13.45 – 15.05 SESSION 3

- Health, Biodiversity and Development, Richard Kock (Royal Veterinary College, University of London, United Kingdom)
- Using native biodiversity to restore metal-polluted soil in tropical Africa: a case study in the copperbelt of Katanga (D.R. Congo), Pierre Meerts (Université Libre de Bruxelles)
- Biodiversity and genetic resources in North and South: Introducing the Nagoya Protocol on Access and Benefit-sharing, Brendan Coolsaet (Université catholique de Louvain)
- Potential for biodiversity conservation of three legal land uses in Central Africa: industrial logging concessions, protected areas, and community forests, Jean-Louis Doucet (Gembloux Agro-Bio Tech)
- Questions/Answers
- 15.05 15.55 Coffee break / Poster session
- **15.50 17.30** SESSION 4
 - Aquatic ecology for sustainable development in Africa, Luc Brendonck (KU Leuven)
- 16.05 17.30 DEBATE moderated by Peter Verlinden (VRT-NEWS, KU Leuven)
- 17.30 18.30 Closing and networking drink



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SPEAKERS

In order of appearance

California C



Name: Camille Pisani

Function: General Director of RBINS

Affiliation: Royal Belgian Institute of Natural Sciences

E-mail address: cpisani@naturalsciences.be

Name: Luc Janssens de Bisthoven

Function: Coordinator of the CEBioS programme

Affiliation: Royal Belgian Institute of Natural Sciences, OD Nature, BIOPOLS, CEBioS

E-mail address: Ijanssens@naturalsciences.be

Area of expertise: Luc Janssens de Bisthoven is specialised in capacity building in developing countries, Project Cycle Management, Development Aid Policy, participative workshops and training of stakeholders, biodiversity policy and mainstreaming. His scientific expertise covers Aquatic ecology, ecotoxicology, wetlands, environmental change.

Abstract of the speech:

This speech will introduce this event 'Biodiversity and development, a global heritage', an initiative of CEBioS (RBINS), in view of the European year for development and the Sustainable Development Goals, the importance of biodiversity for sustainable development in developing countries and the structure of the symposium.







Name: Alexander De Croo

Function: Deputy prime minister and minister of Development Cooperation

Affiliation: Alexander De Croo is Open-VId Deputy Prime Minister in the Belgian Federal Cabinet. He is also Minister of Development Cooperation, Digital Agenda, Telecom and Postal Services. Before taking the office of deputy prime Minister, Alexander De Croo was



Senator and party chairman of Open Vld, the Flemish liberal-democrats.

Graduated in Business Engineering (Solvay Business School, Brussels), Alexander De Croo completed an MBA at the Kellogg School of Management (University of Chicago - United States), in 2004. Between 1999 and 2006, he was employed as a strategy consultant at The Boston Consulting Group, one of the leading management consulting firms worldwide. In 2006, he founded his own company: Darts-IP, a consulting company in the field of intellectual property rights, which today operates throughout the world.

In 2009 he went into politics. He participated in the European elections and in December 2009 he was elected chairman of the Open Vld party. In 2012 he became Deputy Prime Minister and Minister of Pensions in the Federal Government. In 2013 he became deputy chairman of the Global Agenda Council on Ageing within the World Economic Forum. Since that year, he is also a member of the Global Agenda Council on Europe of the World Economic Forum.

Area of expertise: Business Engineering and Administration.



Name: Arnold Jacques de Dixmude

Function: International Cooperation Officer

Affiliation: Directorate-General International Cooperation and Development, European Commission

E-mail address: arnold.jacques-de-dixmude@ec.europa.eu

Area of expertise: Programme Manager of development cooperation actions in the area of biodiversity conservation and the sustainable use of ecosystem services.

Abstract of the speech: The Directorate-General for International Cooperation and Development of the European Commission – also known as "EuropeAid" – is in charge of delivering development assistance to third countries through the management of its principal funding instruments such as the European Development Fund and the Development Cooperation Instrument. The care for environment and in particular, climate change and biodiversity, has significantly increased since the early 2000's. EuropeAid is namely providing for a large share of the EU contribution to the Biodiversity Strategic Plan and its Aichi targets, in the framework of Target 6 of its own EU Biodiversity Strategy to 2020: "Contribute to averting global biodiversity loss". In 2014, EuropeAid launched its "Biodiversity for Life" flagship initiative, aimed at raising the profile of biodiversity conservation and the sustainable use of ecosystem services, having in sight the collective commitment of the parties to the CBD to double international biodiversityrelated financial flows for developing countries by 2015 until 2020. In its recent actions, EuropeAid has also been putting a special emphasis on supporting wildlife conservation in sub-Saharan Africa and combatting wildlife trafficking.





Name: Patrick Grootaert

Affiliation: Royal Belgian Institute of Natural Sciences

E-mail address: patrick.grootaert@naturalsciences.be

Name: Roseline C. Beudels - Jamar

Function: Conservation Biology Unit, Head

Affiliation: Royal Belgian Institute of Natural Sciences

E-mail address: roseline.beudels@naturalsciences.be

Area of expertise: 30 years of experience in conservation biology research. Vulnerability to extinction of small populations of large vertebrates. Endangered species restoration programs, e.g. African ungulates, Central Asian Mammals, Gorillas, Bonobos, bats, brown bear, monk seal. Development and coordination of conservation and restoration plans for endangered species and habitats, e.g.the Sahelo-Saharan megafauna. Species extinction risks. Species habitat relations. Wildlife and habitat management. Biological surveys, identification of protected areas.

Abstract of the speech: Despite repeated commitment by world leaders, the planet is facing an unprecedented wildlife crisis, a crisis that has experienced a dramatic acceleration in the recent years. If the current decline is really severe and well documented in the sub-Saharan countries of Africa, the crisis is much less known but extremely worrying in the Sahelo-Saharan region. Local communities, even more dependent on natural resources in such extreme environments than elsewhere, are directly affected by the loss of this irreplaceable nature. If we cannot directly address the fundamental causes of the unsustainability of our planet, i.e. the prevailing economic model and human population growth, RBINS is active at preserving this unique biodiversity and our common heritage through our global conservation projects.







Name: Marie Anne Eurie Forio

Function : Research assistant of VLIR-UOS Biodiversity network in Ecuador



Affiliation: UGent, Aquatic Ecology Research Unit, Faculty of Bioscience Engineering

E-mail address: marie.forio@ugent.be

Area of expertise: Integrated ecological monitoring, modelling and assessment of river basins in Ecuador.

Abstract of the speech: VLIR-UOS supports partnerships between universities and university colleges in Flanders and the South, looking for innovative responses to global and local challenges, such as biodiversity conservation and ecosystem services analysis and optimisation. This presentation will give an overview of the general activities of VLIR-UOS and several specific projects related to water resources monitoring, modelling and assessment to support river basin management in Ecuador.

After more than a decade of VLIR-UOS cooperation in Ecuador, the VLIR-UOS country strategy identified deepening of Ecuadorian university cooperation through national networks around strategic themes as a priority in order to extend its impact in the country. Because the rich biodiversity and water resources in Ecuador are under siege by human intervention and consequently seriously endangered due to the lack of an adequate valorization of the natural and exploited ecosystems, 'bio-discovery' and 'water resource management' were selected as central themes for the elaboration of this network programme.

In this VLIR-UOS network programme, several Ecuadorean institutes of higher education (Escuela Superior Politécnica del Litoral, Universidad de Cuenca, Universidad Técnica del Norte and Escuela Politécnica Nacional) work together in order to contribute to the sustainable management of Ecuador's natural resources by strengthening advanced human talent in the areas of biodiversity (project 1) and water resource management (project 2). In the first phase of these projects, two joint master's degree programs were established with international standards aiming at the international accreditation. As part of this, several practical river monitoring and modeling studies have been carried out in cooperation with the local universities, stakeholders as well as local agencies.



Name: Duez Pierre

Function: Professor



Affiliation: Service de Chimie Thérapeutique et de Pharmacognosie, Université de Mons

E-mail address: pierre.duez@umons.ac.be

Area of expertise: Teaching: theoretical and practical courses in Pharmacognosy (herbal medicines and phytochemistry), Pharmacology, Nutrition and Bibliography.

Research: study of natural modulators of DNA repair mechanisms, development of a new diagnostic test for malaria, bio-guided fractionation of medicinal plant extracts, phytochemistry

Development cooperation: coordinator of ARES-CCD institutional development for the University of Lubumbashi, (co-)promoter of research projects in DR Congo, Burkina Faso, Madagascar

Abstract of the speech: Madagascar broke away from Africa more than 150 million years. This island is home to 12,000 species of plants (of which 7080 % are endemic), making it one of the regions with the most diverse and original flora in the world. However, Madagascar's ecosystems are highly vulnerable to human activities. This raises the problem of the conservation and regeneration of certain species; which is crucial for the wealth of biodiversity but also for preserved access to original research material, important for the scientific community to develop and enhance new natural compounds that could form the basis for new drugs. The presentation illustrates examples of concrete achievements from a partnership between Malagasy and Belgian scientific teams, more particularly the establishment of an in vitro medicinal plants collection.



Name: Bruno Verbist

Function: KLIMOS project leader

Affiliation: KULEUVEN - KLIMOS

E-mail address: Bruno.Verbist@ees.kuleuven.be



Area of expertise: Natural Resources Management, forestry, agroforestry, hydrology

Abstract of the speech: Eco-agriculture and agro-biodiversity have gained increasingly interest as a compromise to preserve biodiversity, while also delivering much needed agricultural products and ecosystem services. Agricultural intensification at the plot level generally results in a reduction of diversity. However, the land user will not necessarily experience a direct reduction in ecosystem services.

Fossil fuels may substitute some of these ecosystem services, while having a positive impact on yields. Only over time negative impacts might become clear.

At the plot or farm scale biodiversity is generally only maintained if it of direct use or present in the less productive parts of the land. The exceptions may be traditional systems where social customs provide reasons for diversity maintenance. Opportunities for maintaining ecosystem services and biodiversity outside conservation areas are more likely at the landscape than at field scale. This requires adjusted policies that favour diversification in land uses and diversity among land users.



Name: David Leyssens

Function: Co-CEO

Affiliation: The Shift

E-mail address: David.leyssens@theshift.be



Area of expertise: As director of KAURI, David helped to create the new Belgian sustainability network The Shift. This unique stakeholders coalition encourages companies and civil society organisations to create shared value on societal challenges. He studied communication sciences and helped with the development of social profit organization Close the Gap. For this ICT4D he helped to create a partners network in developing countries. He was also involved in the creation of a recycling activity in Kenya for collection and treatment of electronic waste.

David is an active citizen of Brussels, guerilla gardener and likes music.

Abstract of the speech: Biodiversity in relation to Corporate Social Responsibility?

David will give an insight on how the 350 Belgian members of sustainability network The Shift look at biodiversity as part of their sustainability agenda. On the basis of concrete cases he will show that company engagement on biodiversity is too often seen from a traditional charity point of view. He will explain how a strategic approach to company-NGO collaboration on biodiversity can help in the creation of a CSR 2.0 policy;



Name: Lanata Francesca

Function: Africa Project Coordinator

Affiliation: Botanic Garden Meise (BGM)

E-mail address: francesca.lanata@botanicgardenmeise.be

Area of expertise: In charge of development cooperation activities:

- capacity building in the field of ex situ conservation, environmental education and communication;
- designing and implementing activities of rehabilitation and restart of main DRC botanical gardens;
- · facilitating research activities in botany and related fields;
- · coordinating development projects involving technical, financial, local stakeholders;
- providing advice to local non-governmental organisations.

Abstract of the speech:

Plant diversity and development: the activities of the Botanic Garden Meise in Central Africa

The Botanic Garden Meise plays an important role in discovering, understanding and preserving the world's 'plant' diversity: from unicellular diatoms over ferns and flowering plants to lichens and fungi. Africa has been a central focus for the Garden for over 100 years.

In a world that is increasingly under environmental pressure, African plants and the ecosystem services they render are more than ever needed to keep the planet healthy. They mitigate the effect of greenhouse gasses, play an important role in the global water cycle, and help combating desertification. They are also essential for our survival and wellbeing worldwide, providing us with food, energy, fibers, resins, and medicines.

This is why we are committed to Africa's plant diversity, for the benefit of present and future generations.

Our scientific activities are carried out in close collaboration with our African colleagues realizing joined research programs. We also provide technical support to DRC environmental institutions (ICCN, INERA, LWIRO, DRC herbaria, DRC botanical gardens, Virunga National Park...) through education, training and advocacy.





Name: Eva November

Function: Head of Development Cooperation Service

Affiliation: Royal Museum for Central Africa

E-mail address: eva.november@africamuseum.be

Area of expertise: Graduated as Bio-engineer Soil and Water conservation, I have been active in development cooperation research (forest ecology, soil conservation) and coordination since 2001. From 2005 onwards I have worked for the Development Cooperation program of the RMCA with the Belgian DGD.

Name: Jos Snoeks

Function: Senior Scientist & Curator of fishes; Head of Vertebrates

Affiliation: Royal Museum for Central Africa

E-mail address: jos.snoeks@bio.kuleuven.be

Abstract of the speech:

Contributing to Africa's sustainable development is one of the missions of the Royal Museum for Central Africa (RMCA). A significant part of its activities is aimed at promoting development cooperation, towards which the RMCA can use its scientific expertise, collections, documentation, and infrastructure to advantage.

The museum's main partner in this area is the Belgian Development Cooperation (DGD). Activities are varied and are directed at:

- transferring knowledge about Africa and development issues, primarily through educational workshops for schools, exhibitions for the general public in Belgium, and international conferences for academics and professionals.
- implementing research projects in a wide range of disciplines (zoology, wood biology, geology, history, musicology etc) with partner institutes mostly in Central Africa.
- reinforcing the capacities of African institutions through cooperation projects, training for African scientists, and sharing of digital information systems and /or sources.

The RMCA's data and collections in the natural and human sciences are one-of-a-kind, and the museum makes this information available to African institutions, researchers, and students:

- FishBase is the largest online fish encyclopedia (www.fishbase.org). As partner of this international network, the museum focuses on information of African fishes.
- The RMCA created the African Biodiversity Information Center (ABIC). This initiative allows each year visits of African scientists to the Museum to share the data on African biodiversity of the collections.





CEBioS[•]

Name: Daniel Pauly

Function: Professor of Fisheries

Affiliation: University of British Columbia, Vancouver, Canada

E-mail address: d.pauly@oceans.ubc.ca

Area of expertise: Global fisheries, including tropical fisheries. Fisheries science, ranging from biological oceanography to fish stock assessment and fisheries economics.

Abstract of the speech: Fisheries and Global Warming: Impacts on Marine Ecosystems"

The period following the Second World War saw a massive increase in fishing effort, particularly in the 1960s. However, crashes due to this overfishing began to be reflected in global catch trends in the 1970s, and intensified in the 1980s and 1990s. In response, the industrialized countries of the Northern Hemisphere (where overfishing-induced catch declines appeared first) moved their effort toward deeper waters, and toward the south, i.e., to the coasts off developing countries, and beyond into the southern hemisphere, all the way to Antarctica. Now, in the second decade of the 21st century, the global expansion of fisheries is completed, and the real global catch, which is much higher than officially reported, peaked in the late 1980s and is now rapidly declining. In parallel, the collateral damage to marine ecosystems and biodiversity continues to increase. Several factors act to prevent the public in developed countries from realizing the depth of the crisis fisheries are in, notably the increased imports by developed countries, of seafood from developing countries. Also, the misleading perception that aquaculture can substitute for declining catches is widespread. In some countries, notably the US, stocks are being rebuild, but elsewhere, the failure to respond creatively to these clear trends bode ill for the next decades. Indeed, the effects of global warming (productivity declines in the tropics, widespread disruptions at high latitudes), which have been increasingly felt in the last decades, will strongly impact fisheries and global seafood supply.



Name: Marie-Lucie Susini

Function: Biodiversity programme officer & GTI NFP



E-mail address: mlsusini@naturalsciences.be

Area of expertise: Capacity building, taxonomy, marine biology.

Abstract of the speech: The Belgian Taxonomy Initiative

The Belgian GTI is part of the first specific objective of the CEBioS programme, hosted at the RBINS. The overacting objective of Belgium's GTI National Focal Point is to reduce the so-called taxonomic impediment that hinders the implementation of the Convention on Biological Diversity. The specific objective of the Belgian GTI is to help with the development of taxonomic and curatorial capacities in developing countries partner of the Belgian Cooperation. The aim is to strengthen the scientific knowledge base on biodiversity and on its linkages with ecosystem services and poverty reduction.

More information: http://www.taxonomy.be/

Two researchers from Burundi (Longin Ndayikeza, Université du Burundi, Faculté des Sciences) and Marocco (Imane Rahmouni, Université Mohammed V- Souissi) will share their experience as GTI alumni



Name: LOKO Yêyinou Laura Estelle

Function: Lecturer at the Faculty of Sciences and Technology of Dassa

Affiliation: Polytechnic University of Abomey (Benin)

E-mail address: lokoestelle@yahoo.fr



Area of expertise: Plant genetic resources and Crop protection My research activities focus on agricultural development through better knowledge and control of both field and storage pests on major food crops (yams, sorghum, etc.) and also on Neglected and Underutilized species (NUS).

Abstract of the speech: Yam (Dioscorea spp.) is an important tuber crop that highly contributes to food security and poverty alleviation in West Africa and particularly in Benin. However, its production is seriously affected by several constraints including pest attacks. According to farmers, termites are the main pests of yam tubers in the fields. They are prevalent throughout the yam production area in Benin and their damage lead to a significant decrease in yields but also to a loss of varietal diversity. To fight against termite attack, farmers carry out a systematic destruction of termite mounds on the edge of fields and use synthetic insecticides. It is so urgent to develop alternative methods of termite control protecting human health and the environment such as the use of tolerant varieties. Knowing that termites play a role in the population diet, a control only oriented on pest species is desirable. To obtain basic information, a structured guestionnaire was used to interview 142 farmers about their knowledge of termite species of yam, susceptibility of yam landraces, and management practices in 14 villages in central Benin. A total of 45 vernaculars names of termites were recorded corresponding to 10 species among them, Amitermes evuncifer and Trinevitermes oeconomus being the most damaging termite species. Twelve yam landraces were listed as tolerant to termite attacks. Application of chemicals was the most commonly reported control method. According to farmers the high multiplication rate of termites is the most important constraint in managing the issue of termites in yam.



Name: Richard Kock

Function: Professor Wildlife Health and Emerging Diseases

Affiliation: Royal Veterinary College University of London

E-mail address: rkock@rvc.ac.uk



Area of expertise: Epidemiology and pathology of high mortality diseases of wildlife especially large herbivores and carnivores. Speciality pathogen area (viral e.g. morbilliviruses, and bacterial, e.g. tuberculosis, opportunistic infections e.g. pasteurella, clostridia). Interest in the impact food systems on biodiversity and environment and importance of wildlife to food systems. One Health specifically; wildlife livestock human interface including major economic diseases e.g Foot and Mouth Disease and zoonoses e.g. Ebola Virus. Conservation science; metapopulation management, translocation, reintroduction.

Abstract of the speech: Health, Biodiversity and Development

The level of conflict between different global development goals (using the SDG framework) is not adequately appreciated, nor is the nexus between health, biodiversity and the environment. Sustainable human societies depend on our renewable natural resource, but this is rapidly being destroyed and this process will, in time and on current trajectories, be catastrophic. I think we all "know" this but what is extraordinary is that society and Government, in the main, ignore or at best pay lipservice to the fact, probably because it is such a wicked problem. Our sectoral governance structures and the marginalisation of environment and biodiversity means the mandate for resolution of the biodiversity loss and environmental degradation lies with people without the resources or the power to act. Neoliberal economics and globalization are the main drivers of the rapid environmental changes taking place and therefore, Europe, which is a major economic and financial power is a central player in driving biodiversity and environmental decline. Ironically solutions to these problems are not really in the hands of those most affected, more in those who observe these events through a virtual window. Indicators of the impacts of current political economy are needed to persuade society of the need for urgent change. A possible metric are emerging infectious diseases, indicators of biological "distress" and many of these are closely linked to the development process. If human behavior is at the root of this distress, then surely they can also provide solutions? The mechanism and governance for this is what society needs to work on, now - the first stage is to move through the current period of denial as swiftly as possible, changing the narrative from one of "development" at any cost based on growth and consumption, to one of zero growth, cyclical green economies, stewardship and nurturing of our environment and biocapacity, positive engagement with practical solutions.



Name: Pierre Meerts

Function: Ordinary Professor

Affiliation: Université Libre de Bruxelles

E-mail address: pmeerts@ulb.ac.be



Area of expertise: Botany, terrestrial ecology, plant-soil relationships. Functional and evolutionary ecology. Flora of Central Africa. Metallophytes.

Abstract of the speech: Using native biodiversity to restore metal-polluted soil in tropical Africa: a case study in the copperbelt of Katanga (D.R. Congo).

In Katanga, a long history of mining activities has contaminated soils with heavy metals over very large areas. This represents a major concern to sustainable development and human health. Ecological restoration of those areas is challenging. The speech will present the results of a cooperation development project with the Faculty of Agronomy of the University of Lubumbashi, focused on the restoration of soil polluted by the metallurgical industry.

The most original ecosystems in Katanga are the so-called "copper hills" i.e. natural outcrops of bedrock enriched in copper and cobalt. The natural vegetation of copper hills is surprisingly rich and diversified. The project developed applied ecological research in copper hills and ex situ i.e. in a botanic garden created for the occasion. A number of "metallophytes" have been screened for heavy metal tolerance and accumulation and for other traits of interest. One species has emerged as a good candidate and has been successfully domesticated in the botanic garden. The first in situ "phytostabilisation" trials have been installed in the area contaminated by atmospheric fallout downwind the copper smelter of Lubumbashi. Establishment, growth and survival have been monitored for 5 years. The results show that Katangan metallophytes exhibit extraordinary ecophysiological properties which are still poorly understood. They represent unique biological resources to ecological restoration of metal-polluted soils in tropical regions. The conservation of those resources must be explicitly considered in ongoing and future mining projects in Katanga.



Name: Brendan Coolsaet

Function: Research Fellow

Affiliation: Centre for Philosophy of Law, Université catholique de Louvain

E-mail address: brendan.coolsaet@uclouvain.be



Area of expertise: Brendan Coolsaet is a Researcher at the Biodiversity Governance Unit (BIOGOV) of the Centre for Philosophy of Law (UCLouvain). His current research applies an environmental justice approach to the study of collective action and agrobiodiversity conservation. In parallel, Brendan developed an expertise in the field of genetic resources law and governance, in particular on the issues of Access and Benefit-sharing (ABS). He is the lead editor of the book 'Implementing the Nagoya Protocol' (Brill/Martinus Nijhoff, 2015)

Abstract of the speech: Biodiversity and genetic resources in North and South: Introducing the Nagoya Protocol on Access and Benefit-sharing

Genetic resources are of increasing importance for research and development in the European Union. Little known to the public, they are used for the development of everyday products such as medication, perfumes, flavors and crop varieties. Most of these genetic resources however originated from the Global South.

This speech will introduce the Nagoya Protocol on Access and Benefit-sharing, an international treaty dealing with the exchange and utilization of genetic resources. It will discuss it's relevance in a globalized world, both from an ethical and instrumental point of view, and clarify some of the concepts underpinning the emergence of the Protocol, such as the issue of biopiracy, the global distribution of genetic resources, and the relation with traditional knowledge in the South.



Name: Doucet Jean-Louis

Function: Professor

Affiliation: Tropical Forestry, Forest Resources Management, Gembloux Agro-BioTech, University of Liège



E-mail address: jldoucet@ulg.ac.be

Area of expertise: Main research activities: rainforest dynamics, timber species ecology and genetics, silviculture, sustainable forest management and certification.

Main area: Central Africa

Abstract of the speech: In this talk, we will explore the potential for biodiversity conservation of three legal land uses in Central Africa: industrial logging concessions, protected areas, and community forests.

Logging concessions are the most extensive production system (~ 600,000 km²). Generally logging companies must comply with an updated legal framework, including a detailed management plan based on timber and non-timber inventories, planned felling cycles, and site-specific minimum cutting diameters. Timber extraction rates per unit area are low (less than two trees per hectare) and associated forest damages are about 10%. While the canopy recovery is fast, the wildlife is a major concern. Large mammals are often threatened by increased hunting pressure. Forest certification is the main incentive for implementing measures in favor of game management. In the Congo Basin, around 55,000 km² are certified. In certified forests, mammals density can be equal or even higher than in the nearby national parks. Protected areas are the second legal land use (~ 450,000 km²). Their mandate for biodiversity conservation is obvious but very few have a management plan approved by the authorities and some are under extreme pressures. Formal community forests represent around 10,000 km² and exist only in Cameroon and Gabon. In community forests, timber

Without adequate funding and staffing, alone protected areas will not be able to prevent the ongoing biodiversity loss. The sustainable managed concessions may be very useful when they are adjacent to the protected areas. Despite weak governance and land tenure issues, we think that combining certified logging concessions and protected areas is the best way to protect biodiversity in Central Africa.



Name: Luc Brendonck

Function: Senior professor and head of the laboratory

Affiliation: Laboratory of Aquatic Ecology, Evolution and Conservation, KU Leuven



E-mail address: Luc.Brendonck@bio.kuleuven.be

Area of expertise: Luc Brendonck is a Research Professor with 30 years of experience within the fields of aquatic ecology, taxonomy, ecotoxicology, sustainable development, evolutionary ecology and ecological biogeography. Mainly shallow aquatic systems are used to assess diversity patterns in relation to land use and environmental gradients and as models to analyze fundamental ecological and evolutionary processes. His group is also involved in research dealing with the sustainable use of aquatic resources, mainly in Africa.

Abstract of the speech: Due to population expansion and increasing demands for food, water, housing and energy, in many developing countries vast land use changes are taking place with dramatic effects on biodiversity and associated ecosystem functions and services. In Southern and Eastern Africa there is a severe shortage in trained ecologists that can guide the development and application of a community integrated policy that works towards a sustainable exploitation of natural resources. With this presentation I would like to illustrate how by making use of several VLIR-UOS tools we attempt to increase the local capacity in the fields of aquatic ecology, fisheries biology and hydro-ecology in southern and Eastern Africa.



CEBIOS Capacities for Biodiversity and Sustainable Development

LA BIODIVERSITE ET LE DEVELOPPEMENT, UN HERITAGE GLOBAL BIODIVERSITEIT EN ONTWIKKELING: ERFGOED OPWERELDSCHAAL 26/11/2015

DEBATERS



Constanting of the State

Name: Peter Verlinden

Function: JOURNALIST VRT-NEWS LECTURER KU Leuven

E-mail address: peterverlinden@telenet.be



Name: François-Xavier de Donnea

Function: Ministre d'Etat, Président CSAO/OCDE, Administrateur Virunga Foundation (UK)

Affiliation: Club du Sahel et de l'Afrique de l'Ouest (OCDE), Virunga Foundation (UK)



E-mail address: francois.dedonnea@gmail.com

Area of expertise: Le coeur de cible du Club du Sahel et de l'Afrique de l'Ouest de l'OCDE est l'appui aux politiques régionales visant à y promouvoir la sécurité alimentaire et la résilience des plus vulnérables en la matière. La Virunga Foundation (UK) gère le parc des Vriunga. Ses filiales Virunga SPRL (BE) et Virunga SARL(RDC) oeuvrent au développement économiquede ses riverains



CEBioS[•]

DEBATERS

Name: Richard Kock

Function: Professor Wildlife Health and Emerging Diseases

Affiliation: Royal Veterinary College University of London

E-mail address: rkock@rvc.ac.uk

Area of expertise: Epidemiology and pathology of high mortality diseases of wildlife especially large herbivores and carnivores. Speciality pathogen area (viral e.g. morbilliviruses, and bacterial, e.g. tuberculosis, opportunistic infections e.g. pasteurella, clostridia). Interest in the impact food systems on biodiversity and environment and importance of wildlife to food systems. One Health specifically; wildlife livestock human interface including major economic diseases e.g Foot and Mouth Disease and zoonoses e.g. Ebola Virus. Conservation science; metapopulation management, translocation, reintroduction.

Name: Laura Estelle LOKO YEYINOU

Function: Lecturer at the Faculty of Sciences and Technology of Dassa

Affiliation: Polytechnic University of Abomey (Benin)

E-mail address: lokoestelle@yahoo.fr

Area of expertise: Plant genetic resources and Crop protection My research activities focus on agricultural development through better knowledge and control of both field and storage pests on major food crops (yams, sorghum, etc.) and also on Neglected and Underutilized species (NUS).

CEBioS[•]





DEBATERS

Name: Daniel Pauly

Function: Professor of Fisheries

Affiliation: University of British Columbia

E-mail address: d.pauly@fisheries.ubc.ca



Area of expertise: Global fisheries, including tropical fisheries. Fisheries science, ranging from biological oceanography to fish stock assessment and fisheries economics.

Name: Enrico Pironio

Affiliation: European Commission, DEVCO





DEBATERS

Name: Koen Stroeken

Function: Anthropologist

Affiliation: Ugent

E-mail address: Koen.Stroeken@UGent.be

Name: Nicolas Van Nuffel

Function: Head of Advocacy

Affiliation: CNCD-11.11.11

E-mail address: nicolas.vannuffel@cncd.be

Area of expertise: Nicolas VAN NUFFEL, owner of Master's degrees in international relations and business management, has been working in the NGO sector since the start of his career. He lived in particular in Rio de Janeiro, Brazil, accompanying small producers in the perspective of sustainable development. Head of the Advocacy Department at CNCD-11.11.11, the umbrella organization of international solidarity organizations in French-speaking Belgium, since 2008, he is a member of the Federal Council for Sustainable Development.

Nicolas initiated and coordinates the "Point Sud" studies collection, aiming to feed public policy in the area of development.







CEBIOS Capacities for Biodiversity and Sustainable Development

LA BIODIVERSITE ET LE DEVELOPPEMENT, UN HERITAGE GLOBAL BIODIVERSITEIT EN ONTWIKKELING: ERFGOED OPWERELDSCHAAL 26/11/2015

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- 12. Which strategies to conserve and restore metallophytes threatened by intensive mining activities in Southeastern D.R.Congo ? Le Stradic Soizig, Boisson Sylvain, Séleck Maxime, Handjila Guylain, Mahy Grégory; Gembloux Agro-Bio Tech, University of Liege; Tenke Fungurume Mining SARL, D.R.Congo
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16. Reinforcement of the fungal expertise in Ecuador via case studies of fungal plants interactions in selected ecosystems and the development of biotechnology-

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17. Integrating capacity building and nature conservation in large-scale biodiversity surveys: Our Planet Reviewed Papua New Guinea

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- 18. A tale about knowledge and power: rebuilding biodiversity related capacities in the DR Congo: Erik Verheven: Roval Belgian Institute of Natural Sciences. Belgium
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- 20. A multidisciplinary research programme to ensure sustainable coastal livelihoods in Madagascar

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- 21. FishBase for Africa: A contribution to information transfer and capacity building in African ichthyology; Dimitri Geelhand de Merxem, Tobias Musschoot, Gert Boden and Jos Snoeks; RMCA, KU Leuven
- 22. The Ciprinidae of Morocco and their gill monogenea: Systematic and biogeography; Imane Rahmouni, Ouafae Berrada Rkhami, Andrea Simkova, Antoine Pariselle
- **23. Termites ravageurs des ignames et leur gestion traditionnelle au centre du Bénin;** LOKO Yêyinou Laura Estelle; Université Polytechnique d'Abomey
- 24. Recherche sur les insectes pollinisateurs des écosystèmes forestiers et agricoles du Burundi; Longin Ndayikeza, Alain Pauly, Bénoit Nzigidahera, Alexis Mpawenimana & Shadrack Girukwishaka
- **25. Lépidoptérophagie : Sa contribution au développement durable;** *Malaisse François; Gembloux Agro-Bio Tech, Université de Liège*
- **26.** Use of banana diversity for nutritious diets; *I. Van den Bergh, B.N. Ekesa, D. Nabuuma, G. Blomme; Bioversity International*
- 27. The impact of certification on carbon stocks and biodiversity in smallholder coffee systems: A case study in the Mt Elgon region, Uganda Sofie Fabri, Koen Vanderhaegen, Bruno Verbist and Bart Muvs; KU Leuven
- 28. Assessing carbon stocks and biodiversity at the landscape level in Jimma, Ethiopia Koen Vanderhaegen, Bruno Verbist and Bart Muys; KU.Leuven
- 29. Biodiversity conservation in social-ecological systems: (mis)matches between conservation discourses & evidence-based conservation

Katherine Vande Velde, Jean Hugé, Nico Koedam & Farid Dahdouh-Guebas; ULB

30. Swifts Without Frontiers / Martinets sans frontières / Gierzwaluwen zonder grenzen Martine Wauters; Natagora, Natuurpunt, Action for Swifts, Swift Conservation, Commonswift Worldwide



Title: Biodiversity and Development and the CEBioS programme

Author(s): CEBioS – Capacities for Biodiversity and Sustainable Development.

Affiliation: CEBioS – Royal Belgian Institute of Natural Sciences, Operational Directorate Natural Environment

Contact: ljanssens@naturalsciences.be

Abstract of the poster / Description of the booth:

The booth presents the importance of biodiversity and ecosystem services for development in developing countries and outlines the main activities of the CEBioS programme (Capacities for Biodiversity and Sustainable Development).

CEBioS is a centre of excellence for capacity building and development in partner countries of the Belgian development cooperation. The programme promotes research, training, mainstreaming, dissemination of information, awareness raising, and policy advice on the conservation and sustainable use and management of biodiversity and more specifically ecosystem services. This is organised through calls for proposals for short grants, workshops, trainings, dedicated projects, campaigns, publications, and through institutional partnerships.

Many activities are undertaken under the umbrella of the UN Rio Convention on Biological Diversity (CBD), such as capacity building on the Clearing House Mechanism (web-based information dissemination network) and taxonomic trainings in the context of the Global Taxonomy Initiative (GTI).

Most activities of the programme are funded by the Directorate General Development (DGD), as part of the implementation of the CBD Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets, and the Belgian and European biodiversity strategies and action plans.

(1)

Title: Target Cross Linking Tool: Report once, use many times

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Author(s): Han de Koeijer

Affiliation: CEBioS, RBINS

Contact: hdekoeijer@naturalsciences.be

Abstract of the poster / Description of the booth:

A trial Target Cross-Linking Tool has been developed by the European Environmental Agency and the Royal Belgian Institute of Natural Sciences to respond to reporting obligations by Parties to the Convention on Biological Diversity and related biodiversity Conventions. This tool will allow countries to see the inter-linkages between the Aichi Targets, the EU Biodiversity Strategy and any national biodiversity strategy and action plan (NBSAP), in terms of the thematic content of implementation and the reporting requirements.

An online demonstration version was developed by Belgium, with support from EEA, and contains data from the Belgian Biodiversity Strategy 2006-2016 and the 3rd National Report to the CBD. An official version of the Belgian use of the tool has been available since May 2014, based on the revised Biodiversity Strategy 2020 and information from the fifth National Report to the CBD. Further development of the tool will take into account the national, EU and global indicators for each target. This might be done in collaboration with the Biodiversity Indicators Partnership (BIP).

This tool has been introduced to different partner countries of the Belgian Development cooperation At this moment 3 partner countries have started using the tool while 4 others are still testing it before looking for official approval from their respective governments. Examples can be found on:

Belgian NBSAP implementation : http://nbsap.biodiv.be Benin NBSAP : http://benin.nbsap.eaudeweb.ro/ Maroc NBSAP : http://maroc.nbsap.eaudeweb.re



Title:

KMMA: partner van de Belgische ontwikkelingssamenwerking voor een duurzame ontwikkeling in Afrika

MRAC: partenaire de la coopération belge au développement pour un développement durable en Afrique

Author(s): E. November

Affiliation: Koninklijk Museum voor Midden – Afrika / Musée royal de l'Afrique centrale

Contact: http://www.africamuseum.be/about-us/cooperation

Abstract of the poster / Description of the booth:

Contributing to Africa's sustainable development is one of the missions of the Royal Museum for Central Africa (RMCA). A significant part of its activities is aimed at promoting development cooperation, towards which the RMCA can use its scientific expertise, collections, documentation, and infrastructure to advantage. The museum's main partner in this area is the Belgian Development Cooperation (DGD). Activities are varied and are directed at:

- transferring knowledge about Africa and development issues, primarily through educational workshops for schools, exhibitions for the general public in Belgium, and international conferences for academics and professionals.
- implementing research projects in a wide range of disciplines (zoology, wood biology, geology, history, musicology etc) with partner institutes mostly in Central Africa.
- reinforcing the capacities of African institutions through cooperation projects, training for African scientists, and sharing of digital information systems and / or sources.

The RMCA's data and collections in the natural and human sciences are one-of-a-kind, and the museum makes this information available to African institutions, researchers, and students:

- FishBase is the largest online fish encyclopedia (www.fishbase.org). As partner of this international network, the museum focuses on information of African fishes.
- Through the RMCA Knowledge Centre, a large part of the RMCA collections have been placed online in recent years in the form of databases that can be consulted on the RMCA website.
- The RMCA created the African Biodiversity Information Center (ABIC). This
 initiative allows each year visits of African scientists to the Museum to share the
 data on African biodiversity of the collections.



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Title: Twentieth anniversary of the Belgian ratification of the Convention on Biological Diversity:

"1001 Ideas, 1001 Decisions and 1001 Actions to save biodiversity"

Author(s): Belgian National Focal Point to the Convention on Biological Diversity

Affiliation: Royal Belgian Institute of natural Sciences, OD Nature

Contact: Rue Vautierstraat 29, 1000 Brussels; NFP-CBD@naturalsciences.be; +32 2 627 45 45.

Abstract of the poster / Description of the booth:

In 2016 Belgium will celebrate the 20th aniversary of its ratification of the Convention on Biological Diversity. The booth of the National Focal Point to the Convention will present the actions and event that are being organized for this celebration, and that will support the global challenge to save biodiversity by 2020 !

1001 Ideas - Save biodiversity !

Our way of life and of consumption have an enormous impact on our planet's biodiversity. The Royal Belgian Institute of Natural Sciences and its partners therefore invites all to participate in a competition for ideast on how to protect biodiversity. Submission is possible until 10 April 2016. The best ideas to reduce impact of our daily activities on biodiversity in Belgium and in developing counties will be published in an upgraded and mobile version of our "366 Tips for Biodiversity" tool and be rewarded with fantastic prices: ecological smartphones, a bamboo bike, a day on the oceanographic research vessel Belgica, and many, many more. Website / Twitter: www.igivelifetomyplanet.be / #1001biodiv.

1001 Decisions - Save Biodiversity !

Paper copies of "Biodiversity 2020, Update of Belgium's National Strategy", adopted in 2013 by the Interministerial Conference for the Environment, and a poster illustrating the major updates, are available in multiple languages in the booth. This strategy is the only national framework instrument for the conservation, and sustainable and equitable use of biodiversity, in Belgium and abroad. Website: www.biodiv.be.

1001 Actions - Save Biodiversity !

All participants to the event are invited to engage in the campaign "igivelifetomyplanet. be" and register their actions for the planet. Our booth will showcase our public awareness raising publications, including the "366 Tips for Biodiversity", and its condensed version that has been published in all EU and UN languages. No more excuse to delay your change of behaviour!

International Biodiversity Day 2016: More information on the celebration of the 20th anniversary of the Belgian ratification of the CBD and the event scheduled on 20.05.2016 will be available as of February 2016 on 1001pourlabiodiversite.be / 1001voorbiodiversiteit.be.


Title: The intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES): strengthening capacity for the effective use of science in decision-making

Author(s): Hilde Eggermont¹, Pierre Huybrechts¹ & Hans Keune²

Affiliation:

¹Royal Belgian Institute of Natural Sciences – Belgian Biodiversity Platform ²Research Institute for Nature and Forest (INBO) – Belgian Biodiversity Platform

Contact: h.eggermont@biodiversity.be

Abstract of the poster / Description of the booth:

Biodiversity from terrestrial, marine, coastal, and inland water ecosystems provides the basis for ecosystems and the services they provide that underpin human well-being. However, biodiversity and ecosystem services are declining at an unprecedented rate, and in order to address this challenge, adequate local, national and international policies need to be adopted and implemented. To achieve this, decision makers need scientifically credible and independent information that takes into account the complex relationships between biodiversity, ecosystem services, and people. They also need effective methods to interpret this scientific information in order to make informed decisions. Finally, the scientific community also needs a better understanding of the needs of decision makers in order to provide them with the relevant information. In essence, the dialogue between the scientific community, governments, and other stakeholders on biodiversity and ecosystem services needs to be strengthened.

To this end, a new platform has been established by the international community - the 'Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES). IPBES was established in April 2012, as an independent intergovernmental body open to all member countries of the United Nations. The members are committed to building IPBES as the leading intergovernmental body for assessing the state of the planet's biodiversity, its ecosystems and the essential services they provide to society.

IPBES provides a mechanism recognized by both the scientific and policy communities to synthesize, review, assess and critically evaluate relevant information and knowledge generated worldwide by governments, academia, scientific organizations, non-governmental organizations and indigenous communities. This involves a credible group of experts in conducting assessments of such information and knowledge in a transparent way. IPBES is unique in that it will aim to strengthen capacity for the effective use of science in decision-making at all levels. IPBES will also aim to address the needs of Multilateral Environmental Agreements that are related to biodiversity and ecosystem services, and build on existing processes ensuring synergy and complementarities in each other's work.

This poster will describe the main functions and operational objectives of IPBES, with focus on capacity building and knowledge foundations. In addition, it will provide some insights how to engage in Belgian IPBES National Focal point activities.



Title: The Belgian GBIF node

Author(s): André Heughebaert

Affiliation: Belgian Biodiversity Platform

Contact: a.heughebaert@biodiversity.be

Abstract of the poster / Description of the booth:

The Global Biodiversity Information Facility (GBIF) is an international open data infrastructure, funded by governments. It allows anyone, anywhere to access data about all types of life on Earth, shared across national boundaries via the Internet.

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By encouraging and helping institutions to publish data according to common standards, GBIF enables research not possible before, and informs better decisions to conserve and sustainably use the biological resources of the planet. GBIF operates through a network of nodes, coordinating the biodiversity information facilities of Participant countries and organizations, collaborating with each other and the Secretariat to share skills, experiences and technical capacity.

GBIF's vision: "A world in which biodiversity information is freely and universally available for science, society and a sustainable future."

The Belgian Biodiversity Platform is the Belgian national node to GBIF. As such, we support any Belgian individual or institution wishing to publish or make use of biodiversity data on GBIF network.

The Belgian BIF is a vibrant community of data publishers that consists of federal institutions, regional administrations, universities, research institutes and NGOs. Together they have published 9 million records from 73 occurrence datasets and 9 checklists datasets.

Belgium publishes data covering 228 countries, territories and islands.

More than 110 peer reviewed scientific articles making use, or citing, GBIF.org have Belgian authors.

We are willing to go even further by expanding the current network of Belgian biodiversity data publishers and users through our data mobilization and data training program.



Title: CETAF Consortium of European TAxonomic Facilities

Author(s): Ana Casino (General Secretary); Christophe Coel (Communication); Lise Goudeseune (International Relations & Networking)

Affiliation: CETAF

Contact: info@cetaf.org

Abstract of the poster / Description of the booth:

CETAF is the Consortium of European Taxonomic Facilities: a European network of Natural Science Museums, Natural History Museums, Botanical Gardens and Biodiversity Research Centres with their associated biological collections and research expertise.

We aim to promote training, research and understanding in systematic biology and palaeobiology, and facilitate access to information (collections) and the expertise of its member institutions across Europe.

The CETAF network comprises 33 members representing 57 of the largest taxonomic institutions from 20 European countries. Its member institutions include Natural History Museums, Natural Sciences Museums, Botanical Gardens and other research institutions, with their associated collections and represent more than 80% of the world's described species. The collections themselves contain specimens of animals, plants, fungi, rocks or genetic resources that are used for scientific research and exhibitions. Owing to these collections, CETAF collectively represents an unprecedented resource for scientific research across the globe and its members act as the custodians of our common heritage. CETAF member institutions dedicate themselves to both the preservation of this rich heritage as well as to the promotion of it through scientific research, education and public outreach.



Title: Biodiversity; Forests in Congo

Author(s): Belgian Development Cooperation

Contact: Mia Van Aken (mia.vanaken@diplobel.fed.be)

Abstract of the poster / Description of the booth:

• Without biodiversity, no life is possible. Our health, food, wellness ... depend every day on the biological richness of our planet. The exhibition explains the importance of biodiversity with the example of two Belgian projects.

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 The forests in Central Africa, « the second lung of the world », host a great diversity. They produce a variety of food for the local population and transform lots of CO2 in oxygen. The exhibition explains the importance of the Congolese forests and shows how Belgium aims to protect them.



Title: Contributing to ecological research and sustainable management of African tropical forests

Author(s): Gestion des Ressources Forestières - Foresterie Tropicale (Département BIOSE, Gembloux Agro-Bio Tech, Université de Liège)

Contact: jydevleeschouwer@ulg.ac.be ; anais.gorel@ulg.ac.be

Abstract of the poster / Description of the booth:

Central African rainforests home a unique biodiversity, are also important carbon sinks and provide a variety of products, essential for the economic development (timber) and for the survival of local communities (non-timber forest products, game, medicines, etc.) However, increasing population and industrialization could threat the equilibrium achieved during many generations. Thus, understanding the past and present dynamics of these ecosystems is urgently needed to ensure their sustainable management.

Our research team on tropical forestry (Gestion des Ressources Forestières, Gembloux Agro-Bio Tech – Université de Liège) leads fundamental and applied scientific research on various aspects of forest dynamics in order to allow sustainable uses of these ecosystems, while preserving their integrity. We also provide technical support to local communities and forest companies for a sustainable management of tropical ecosystems.

We will share our approaches and methodology by showing research instruments and field collections (herbarium, charcoals, pottery, wood samples, etc.) Our main results will be presented by several books, papers and posters on tropical ecology, botany, genetics, paleoecology, archaeology and sociology. Finally, we would be very pleased to discuss with you about tropical ecosystems.





Title: Study of dispersers and predators of Guibourtia tessmannii: What influence on the regenerative potential of the species?

Author(s): Félicien Tosso^{1*}, Gauthier Cherchye¹, Georges Lognay², Jean-Louis Doucet¹

Affiliation:

(¹) Forest Resources Management, BIOSE Department, Gembloux Agro-Bio Tech, Université de Liège

(2) Unit of Analytical Chemistry, Gembloux Agro-Bio Tech, Université de Liège

Contact: dnftosso@ulg.ac.be

Abstract of the poster / Description of the booth:

Guibourtia tessmannii (Fabaceae / Caesalpinioideae), known as Bubinga (Cameroun) and Kevazingo (Gabon) is a species of a great commercial and social importance. Its population densities are low due to local deficits combined with the increasing anthropogenic pressure. To estimate the species regeneration capacity, a study of dispersers and predators through direct and indirect observations allowed to identify four species of birds (Ceratogymna atrata, Corythaeola cristata, Tockus camurus et Agelastes niger), two species rodents (Crycetomis emini et Funisciurus anerythrus) and one species of monkey (Mandrillus sphinx). This study showed that the seeds of G. tessmannii are under heavy predation by rats. A chemical analysis of several samples of G. tessmannii seeds indicated the presence of many volatile molecules, whose the most important is sulcatone (6-methyl-5-Hepten-2-one). This particular volatile molecule was identified in female rats in estrus phase justifying the strong power of attraction of G. tessmannii seeds on male rats. The major consequence of the seed predation is a crucial lack of regeneration. This observation underline the importance to develop of assisted regeneration strategies for this species.

Keywords: Dispersal, Predation, Regeneration, Guibourtia tessmannii



Title: Miombo woodlands: an endangered forest ecosystem in periurban areas of the southeastern cities of the Democratic Republic of Congo.

Author(s): Hick Aurélie (¹), Kizila Wimana Pacifique (²), Tooth Martin (¹), Hallin Maud (¹), Hoffait Nicolas (¹), Salmon Fanny (¹), Tshibungu Alain (²), Mahy Grégory (¹)

Affiliation:

(¹) Gembloux Agro-Bio Tech, Université de Liège, Passage des Déportés, 2 - 5030 Gembloux, Belgique

(²) Faculté des Sciences Agronomiques, Université de Lubumbashi – Lubumbashi, RDC

Contact: Hick Aurélie – aurelie.hick@ulg.ac.be

Abstract of the poster / Description of the booth:

In Democratic Republic of Congo (DRC), deforestation affects periurban areas. In the southeast of the country, the redevelopment of mining activities caused exponential demographic development of the main mining towns. The population of Lubumbashi has increased from 100.000 people to more than 1.5 million in 50 years. This population growth increased pressure on the Miombo woodlands (wood energy, area of the city, subsistence farming).

In the periurban area of Lubumbashi, forests occupying 85% of the territory in 1956 were reduced to less than 12% in 2009. These land use changes threaten the sustainability of the ecosystem and the survival of many local people who depend on forest products for food and energy.

In this context of deforestation / forests degradation, characterization of the last forests on the outskirts of the city is the first step in ecological restoration.

The potential of a natural restoration was evaluated through the study of ecosystem's resilience after forest degradation. Ecological restoration should be done in collaboration with local populations. The taxonomic knowledges of tree species used by the population were evaluated through interviews conducted in villages near the city. The presence of trees in the agricultural system was also identified.

Several studies have been conducted in a PhD at the Biodiversity and Landscape Unit - Gembloux Agro-Bio Tech .This poster provides a summary of the results.

Five Miombo forest communities have been highlighted in the rural area adjacent to the city of Lubumbashi. Miombo woodlands appear to be resilient to degradation. Taxonomic knowledges of the rural population are low and few trees are left in the agricultural system.



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Title: Which strategies to conserve and restore metallophytes threatened by intensive mining activities in Southeastern D.R.Congo ?

12

Author(s): Le Stradic Soizig¹, Boisson Sylvain¹, Séleck Maxime¹, Handjila Guylain², Mahy Grégory¹

Affiliation:

⁽¹⁾ Biodiversity and Landscape Unit, Gembloux Agro-Bio Tech, University of Liege, Gembloux 5030, Belgium.

(²) Tenke Fungurume Mining SARL, Route de l'aéroport, Lubumbashi, Katanga, D.R.Congo.

Contact: Soizig.lestradic@ulg.ac.be / Sylvain.Boisson@ulg.ac.be

Abstract of the poster / Description of the booth:

One of the greatest contemporary challenges consists in the integration of economic activities with environmental integrity and social concerns. This is especially the case of mining activities. South of the Democratic Republic of Congo and adjoining regions in the North of Zambia comprise some of the largest ore bodies of copper (Cu) and cobalt (Co) in the world. The Katangan Copperbelt is composed of more than a thousand Cu-Co outcrops scattered over more than 400 km (W-E). Most Cu-Co outcrops have now been allocated to mining companies and expected to be impacted in the coming years and decades. In transition to environmentally responsible operations, some actors of the mining industry are changing their environmental and social practices. Since 2007 Gembloux Agro Bio Tech, University of Liege has been developing a collaboration with a mining company in order to plan conservation and restoration actions before, during and after the extraction phase. Actions include in-situ conservation, community translocation through vegetation mat and topsoil transposition, direct top soil seeding of structuring species and ex-situ conservation through the development of a seed bank. Another mechanism for ensuring the survival of metallophytes is to promote their use in ecological restoration, site rehabilitation and phytoremediation projects at mine closure. Aims of implemented actions are i) to gain information and experience on the feasibility of restoration program for copper vegetation and understand which process can limit the restoration of copper communities and, ii) to temporarily store and conserve native copper plant diversity in order to reestablish it on post-mining sites. It is essential to increase and promote effective restoration programs using native plant and deliver appropriate know-how to mining companies if we are to avoid the widespread use of exotic species in the revegetalisation of ecologically compromised areas.



Title: ECOmakala : meeting energy needs, fighting poverty and protecting the forests of the Virunga National Park, eastern Democratic Republic of Congo

Author(s): WWF Belgium

Affiliation: WWF

Contact: Mone.vangeit@wwf.be

Abstract of the poster / Description of the booth:

The Virunga National Park (ViNP) situated in the East of the DRC, in the North Kivu province, is Africa's oldest and most biodiverse park covering 784,368 ha's going from primary rain forest, savannah and volcanoes to a high mountain's massif. North Kivu is one of DRC's most dense populated provinces where more than 90% of the population relies on wood for their energy needs. Goma, North Kivu's provincial capital, has seen the arrival of many families fleeing the fighting and its consequences in rural areas. Goma's population currently stands at 1 million inhabitants following a population boom which has led to a steep rise in energy demand. Since electricity is scarce, people rely on energy wood, and in urban areas, mostly used under the form of charcoal or "makala" in local language. As a result, the resources of the ViNP encounter an enormous pressure. Above this, the illegal wood energy cut down in the ViNP and the resulting charcoal is subject to an illegal business which doesn't favour the local population. At present, one bag of charcoal costs between 25 and 30\$, where a couple of years ago the price lied around 10\$. In a region like the Kivu's, large scale reforestation initiatives in collaboration with local communities are a relevant alternative for the forest resources of the park while contributing to local development. The ECOmakala program (2007-2016; EU/Dutch Cooperation/IFDC/CIFOR/CBFF/WWF) reforested up to 10 000 hectares of small holder lands (with an average of 1 ha) in the territories surrounding the ViNP, for the provision of legal and sustainable energy wood to the local communities. In 2015 and with the support from the Belgian Development Cooperation, WWF initiated the "Makala kwa mafa yetu" project focusing on the organisation of the eco-makala value chain, through the structuration of the farmer planters in groups or cooperatives in view of the marketing of the eco-makala while assuring a fair revenue for the farmer planter. Another objective of the project is to diversify pure reforestation activities by introducing trees into crop land. It is important to make sure that the sources of makala production are also supporting food production systems while protecting the soil, increasing the quality of crops, and easing climate change. The ECOmakala program also tries to contribute to decrease the makala consumption needs in the short run, by promoting the use of efficient wood stoves, requiring up to 50% less makala. Since 2013, ECOmakala is part of the REDD+ program for the DRC which aims to reduce emissions from deforestation and forest degradation as well as to increase conservation, with the greater objective of mitigating climate change.



Title: Natural regeneration of forest for environmental and socio-economic development in Bas-Congo, DRC

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Author(s): Viktor Deklerck, Gilbert Atanda Botikale, Céline De Caluwé

Affiliation: Department of Wood Technology, UGent WWF Democratic Republic of Congo; WWF Belgium

Contact: Celine.Decaluwe@wwf.be

Abstract of the poster / Description of the booth:

Local communities in the west of the Bas-Congo province are very dependent on forest resources for firewood collection, hunting and agriculture. Many parts of the ancient Mayombe forest have disappeared due to historical timber logging as well as slash and burn agriculture, and are left over as savannas. Communities are concentrating around the Luki Biosphere Reserve as the savannas don't offer many resources in comparison to forest. The savannas are still burned every year to capture small mammals, leaving the soil completely degraded and unsuitable for agriculture.

WWF is working in the areas around the Reserve on the natural regeneration of savanna (NRS) by preventing annual fires. Groups of local communities for forest conservation are established thanks to ten year experience on community based conservation in the region. To protect the savannas from fires, WWF works closely with the community groups and landowners through awareness programs.

A plot of 88 ha was established in Manzonzi village in 2005. By 2015, the savanna had evolved to a mosaic of different types of secondary forest. Typical forest expansion pioneer species as Macaranga spinosa and forest species as Anthocleiste vogelii are becoming more important and typical savanna species as Hymenocardia acida are losing ground.

The trees provide firewood for local communities. Additionally, the NRS offers hunting possibilities, since the local communities have observed the comeback of birds and mammals. The absence of fire enables the soil to slowly develop again and to restore the soil's fertility, which offers possibilities for agriculture. The communities based conservation groups and WWF are working on a sustainable way of managing these new patches of forest.

This project is part of the REDD+ program of DRC with the greater objective of mitigating climate change. In 2015, WWF engaged in scientific research for the calculation of carbon storage through the NRS, in cooperation with Ghent University and the Royal Museum for Central Africa. The aboveground carbon was estimated on 41.8 ± 1.30 ton C/ha or 153.4 ± 4.8 ton CO2 /ha. However, further research is needed to create a growth curve of the trees to estimate carbon storage over time.

By June 2016, WWF aims to secure 5000 ha of natural regeneration of savanna around the Luki Biosphere Reserve.

Author(s): André DE KESEL¹, Bill KASONGO², Jérôme DEGREEF¹ & Nourou YOROU³

Affiliation:

- ¹ Botanic Garden Meise, Nieuwelaan 38, 1860 Meise, Belgium
- ² Université de Lubumbashi, RD Congo
- ³ Faculty of Agronomy, University of Parakou, BP 123, Parakou, Bénin

Contact:

¹ andre.dekesel@botanicgardenmeise.be; ² Billkasongo@gmail.com

Abstract of the poster / Description of the booth:

The mega-diverse rainforests of Central Africa usually draw most of the attention of conservationists because of their destruction by the logging industry. Lesser known is the forested area around the so-called Congo Basin that is being systematically depleted due to charcoal production. The latter woodlands (termed Miombo's) are adapted to a long dry season (at least 4 months) with many tree species being resistant to bushfires. These forests are vulnerable because once cleared they have difficulty to regenerate. The human pressure on this forest ecosystem is excessively high since half of the African population depends on it for food, medicine, fuel and construction timber.

Over the years we developed a method for delivering taxonomical data and tools for the conservation and sustainable use of these woodlands. These tools are meant to estimate the value of Non Timber Forest Products (NTFPs) like edible fungi, an essential step in the re-evaluation of the true worth of less-valued yet threatened ecosystems.

By using permanent plots the annual, natural production of wild edible fungi was measured in different forest types. This study was conducted in the woodlands of Southeastern DR Congo (Katanga, Zambezian region). In this area fungi are an important food source and a vital income for millions of people. The study reveals a high diversity of edible species within the region. The majority of these fungi are ectomycorrhizal symbionts, i.e. obligatorily associated with the root system of living trees. The species composition appears to depend on the forest type. Our study reveals that the yields of fungi range from 100 to 300kg/ha.year, depending on the species and forest type. If just 10% of this production reaches the market to be sold at an average price of $1 \in /kg$, the wild edible fungi from a single hectare of miombo forest would deliver, on average, $18.2 \in /$ year. Although charcoal delivers a much greater amount, i.e. $400 \in /ha$, this income has to be corrected because a felled woodland needs 30 years to regenerate. Consequently charcoal conversion of a miombo forest delivers on average $13.3 \notin /year$.

The study proves that maintaining the ecosystems' service of delivering NTFPs is financially and culturally much more beneficial for local people than the production of charcoal and that long-term benefit outweighs short-term gains.

Title: Reinforcement of the fungal expertise in Ecuador via case studies of fungal plants interactions in selected ecosystems and the development of biotechnology-oriented fungal resource centres.

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Author(s): Gordillo A. 1-2 Garcés M. 1-2, Cevallos S. 1-3 Luna V. 2 Decock C.1

Affiliation:

¹ Mycothèque de l'Université catholique de Louvain (MBLA, MUCL), Earth and Life Institute, Croix du Sud 2 bte L7/05.06, 1348 Louvain-la-Neuve, Belgium ² Laboratorio de Microbiología Pontificia Universidad Católica del Ecuador, Quito

³ Universidad Técnica Particular de Loja (UTPL), Centro de Biología Celular y Molecular (CBCM), San Cayetano Alto s/n. Loja, Ecuador

Contact: cony.decock@uclouvain.be

Abstract of the poster / Description of the booth:

Ecuador harbors an exceptional biodiversity, reaching its peak in the eastern Amazonian Region. Ecuador emphasized the ecological but also economical and societal values of its biodiversity and the necessity to preserve it together with the development of sustainable mechanisms to valorize it for present and future benefit and the country economy. Today, many local ecosystems are still poorly inventoried as far as their biodiversity is concerned, and some groups of organisms, such as the fungi, remain scarcely investigated. At the same time, the ecosystems in Ecuador do not escape the global biodiversity erosion, resulting from direct or indirect human activities. Amongst these activities, exploitation and deforestation represent major threats. Oil activities represent key economic and environmental issues for Ecuador. It represents 1/3 of the annual incomes of the country. However, the main oil fields overlap largely protected areas and ancestral indigenous territories, and its exploitation negatively affects terrestrial and aquatic ecosystems, causes serious threats to the environment and affects the local populations.

Fungi constitute a major clade of biodiversity. Their ecological significances are incalculable, as they play key ecological roles, participating in ecosystems functioning and equilibrium (recycling carbon, plant production, plant diversity). Fungi associated to plants are important components of the fungal diversity. Fungi and plant have developed specific to generalist interactions. Issues in mycology, culture collection, plant ecology and ecosystem conservation delineated a project which global objective is to improve the knowledge of ecosystems functioning, through the study of plant-fungi interactions at the rhizosphere level in various natural or disturbed areas or botanical groups.

Selected plant/fungi interaction models are: rhizosphere fungal component (arbuscular mycorrhizal fungi and saprophytes) of plants communities in regenerating oil polluted ponds and Orchids mycorrhizal diversity in relation to orchid diversity, an indicator of ecosystem vitality.



Title: Integrating capacity building and nature conservation in large-scale biodiversity surveys: Our Planet Reviewed Papua New Guinea

Author(s): Maurice Leponce¹, Vojtěch Novotný², Olivier Pascal³

Affiliation:

¹O.D. Nature, Royal Belgian Institute of Natural Sciences;

- ² New Guinea Binatang Research Center, Madang, Papua New Guinea.
- ³ Pro Natura International, 15, avenue de Ségur, 75007 Paris, France

Contact:

Maurice.Leponce@naturalsciences.be

Abstract of the poster / Description of the booth:

During the terrestrial survey of the "Our Planet Reviewed" project in Papua New Guinea we created a bridge between biodiversity research, capacity building and nature conservation. The scientific aim of the project was to estimate, for the first time, the biological diversity generated by altitudinal turnover of insect species. The project was set up by the Natural History Museums of Brussels (RBINS) and Paris (MNHN), the NGO Pro-Natura International, the French IRD and, as local partners, the New Guinea Binatang Research Center (BRC) and the University of Papua New Guinea. Half of the core scientific team (ca 50 persons) was made of local research assistants and the other half of international biodiversity experts. Local research assistants (called paraecologists and parataxomists) were recruited in local communities, trained by BRC and supervized by the international experts. Locals were involved in sample collection, sample pre-sorting and received training and salary. This not only speeded up sample collection, but simultaneously supported nature conservation as the locals had means of income other than from commercial logging. We also paid land-use fees to land owners as compensation for collecting plants and animals in their forest plots. Conservation initiatives by local communities were further supported by funds from private sponsors raised by BRC. Funds were also collected to allow local scientists to visit overseas laboratories and to participate to international conferences. To summarize, large-scale biotic surveys are not only essential to understand the functioning of complex tropical ecosystems where biodiversity is highest but can also be important drivers of capacity building and nature conservation.

Associated movie: "In the treetops of Papua New Guinea". Director: Maurice Leponce. Author: Maurice Leponce & Gildas Corgnet, 2015, HD, 16min



Title: A tale about knowledge and power: rebuilding biodiversity related capacities in the DR Congo

Author(s): Erik Verheyen

Affiliation:

Operational Direction Taxonomy and Phylogeny, Royal Belgian Institute of Natural Sciences, 1000 Brussels, Belgium

Contact: erik.verheyen@naturalsciences.be

Abstract of the poster / Description of the booth:

Millions of people rely on forests for food, medicines, energy and income. Indigenous groups depend almost entirely on them. It is anticipated that more economic activity may result in an increasingly rapid and chaotic development, with the destruction of natural resources and biodiversity as a consequence. Therefore, policy makers worldwide are becoming more and more interested in preserving biodiversity. The relatively recent notion of ecosystem services rendered to human populations (locally and on a global scale) is gradually incorporated in the economic equation. Suspect and unlawful access to or acquisition of biodiversity (and/or related traditional knowledge) without prior informed consent by local stakeholders on the part of those whose biodiversity (or traditional knowledge) has been "accessed" or "acquired", is recognized as the nasty and ongoing issue of "bio-piracy".

In addition to their ecological value, the forests of the Congo basin also represent an important resource for the country's economic development and the related political stability. Knowledge on a region's ecosystem can be thus become a powerful tool for those interested in increasing their economical and political power. The tropical forests in the DR Congo account for approximately 50% of the rain forests on the African continent, globally only surpassed in size by the tropical rain forests in the Amazon. From a global perspective, the main importance of the Congo basin is its uniquely rich biodiversity and its climate-relevant functions.

Because of its weakened institutional structures and its limited financial resources, the DR Congo solicits external support to rebuild its capacities in this regard. Only a solid knowledge base on the biodiversity in the DR Congo allows the reliable monitoring and control of the impact on forest biodiversity by logging, slash-and-burn agriculture practices, human-made bush fires, mining activities, and uncontrolled fishing practices and bush meat hunting. Our poster introduces three ongoing projects in Kisangani (Congo2010/CSB, IMAB/CeBIOS & VLIR CUI-Unikis) that each in a different way, contribute to increased local expertise, the valorization of biological resources through sustainable exploitation, and a better knowledge of the biodiversity in the Congo Basin. Arguably, these projects contribute to the empowerment of the Congolese scientific community, and the Congolese society as a whole.



Author(s): Joëlle De Weerdt, Victoria Pouey-Santalou, Julie Morin-Rivat

Affiliation: ELI-Scientific

Contact: joelle.deweerdt@eli-s.com

Abstract of the poster / Description of the booth:

Dive into the world of whales and dolphins!

Whales and dolphins are smart and mysterious animals. Despite the key ecological services that whales and dolphins offer to the marine environment, most of them are endangered because of anthropogenic impacts among which food impoverishment, pollution, bycatch, maritime traffic and global climate change. As a model country, Nicaragua is a developing country with a great biodiversity potential for research on cetaceans.

At the moment, there is a lack of information on cetaceans in Nicaragua. As anthropogenic activities are increasing because of the development of ecotourism and the future construction of a 278km maritime canal across the country. The lack of data directly affects the conservation of species. Indeed, a recent study on a dolphin species usually classified as "common" showed that it is actually disappearing in Argentina because of limited information on this species and management plans.

We cannot protect what we do not know. In this context, ELI-Scientific NGO designed a scientific research project called "Cetacean conservation in Nicaragua" (CCN) in order to combine science with local communities and decision makers. Local communities showed great interest in collaborating to this project because they want to actively participate to the protection of their marine heritage. So, please visit our stand to talk with our enthusiastic team about our unique project!

The project aims at combining science with environmental education and management.





A multidisciplinary research program to ensure sustainable coastal livelihoods in Madagascar Eeckhaut 1.¹, Lavitra T.², Dubois P.³, Lepoint G.⁴, Grosjean P.⁵, Todinanahary G.G.B.^{1,2} and Tsiresy G.^{1,2}

Leckhaut I. ', Lavitra I.', Dubois P.', Lepoint G.', Grosgean P.', Iodinanahary G.G.B.'* and Isiresy G.** Université de Mons (Belgium) : Public Institut Halleutique et des Sciences Marines, Toliara (Madagascar) ;* Lab. of Marine Biology. Free University of Brussels (Belgium) : * 4 Lab. of Oceanology. University of Linge (Belgium) : Lab. of Numerical Ecology of Aquatic environment, University of Mons

(Belgium)

A multidisciplinary research partnership :

- 4-year programs financed by the ARES-CDD (Belgium)
- 3 Belgian universities, 4 laboratories :
- Lab. of Marine Organisms and Biomimetism and Lab. of Numerical Ecology of Aquatic Environment (University of Mons); Lab. of Marine Biology (Free University of Brussels); Lab. of Oceanology (University of Liège)
- 2 Malagasy universities : Université Nord d'Antsiranana ; Institut Halieutique et des Sciences Marines (University of Toliara)
 2 PhDs and several Masters degrees in preparation
- Private sectors and NGOs fully involved

Objectives :

- Improve knowledge and identify solutions to problems facing emerging aquaculture sectors
- Develop know-how and national capacities to ensure and promote polyaquaculture at the village-scale
- Increase the potential of marine artisanal aquaculture development in the coastal zones of Madagascar
- Evaluate the possibility of combining seaweed farming with other mariculture (e.g. coral farming and/or sea cucumber)

Activities implemented :

 Creation of 2 Polyaquaculture Research Units laboratories equipped for ex- and in-situ experiments (north and south of Madagascar)

- Multidisciplinary research and experimentation combining oceanology, marine biology and physiology, numerical
- ecology, genetics, histology, social sciences...
- Supervision of students and improvement of training on aquaculture topics
- · Leading national multi-stakeholder aquaculture platform exchange and capitalization
 - Polyaquaculture Research Unit (PRU) :



Seaweed cultivation :



Holothurian farming :

Coral cultivation :



Main goals :

Seacucumber Farming
 Coral Cultivation Spot

- Multiple types of physiology and farming performance
- Main disease etiology and means of disease control
- Survival and growth parameters and patterns
- Defining quality parameters
- Socioeconomic impacts (seaweed and sea cucumber farming)
- Socioeconomic and commercial feasibility (coral farming)







Author(s): Dimitri Geelhand de Merxem¹, Tobias Musschoot¹, Gert Boden¹ and Jos Snoeks^{1,2}

Affiliation: ¹ Royal Museum for Central Africa (RMCA); ² Department of Biology, Laboratory of Biodiversity and Evolutionary Genomics, KU Leuven

Contact: dimitri.geelhand@africamuseum.be

Abstract of the poster / Description of the booth:

FishBase is the world's largest, freely accessible, online database on fishes. It contains information on the more than 33.000 known fish species and can be consulted in different languages. FishBase includes data on the taxonomy, distribution, reproduction, morphology and behavior of fishes, as well as numerous practical tools for ichthyologists and fisheries biologists.

The Royal Museum for Central Africa (RMCA) is a founding member of the FishBase Consortium and has a more than a century long tradition in biodiversity studies on African fresh- and brackish water fishes. It curates the largest collection of African fresh- and brackish water fish species in the world and also holds a unique library focused on the ichthyodiversity of Africa.

The lchthyology Unit of the RMCA has developed a comprehensive FishBase for Africa program to provide high quality information on African fishes directly to scientists and decision makers in Africa, and to contribute to local capacity building. The program includes, but is not limited to, following activities: adding and verifying information on African fresh- and brackish water fishes in FishBase, organizing annual and comprehensive training sessions on the use of FishBase and on fish taxonomy, developing AquaMaps for African freshwater fish species and assessing the conservation status of African fish species for the IUCN Red List of Threatened Species. The development of these activities within the museum is a major instrument to directly assist in a better conservation of the African ichthyodiversity and in a sustainable management of fisheries.





Author(s): Imane Rahmouni, Ouafae Berrada Rkhami, Andrea Simkova, Antoine Pariselle

Contact: Imanita.25@hotmail.fr

Abstract of the poster / Description of the booth:

The Moroccan continental water is rare, and the Cyprinidae the most frequent freshwater fish group. Native and endemic cyprinids in Morocco included 7 Luciobarbus species, two Carassobarbus species and Ptercapoeta maroccana. Climate change is likely to endanger the rare and precious water resources. If we want to mitigate their effects through a careful management, we should first identify fish species with certainty and also understand their complex evolutionary history (different origins), which is a challenge because of their polyploidization and intra- and inter-generic hybridization phenomena. One of the solutions, in addition to conventional methods (morphology and genetics), is to study host specific parasites (Monogenea), which can be used as biological markers (systematic, phylogenetic and biogeography of hosts). Three sampling campaigns were carried out in Southern part of Morocco in 2014-15. More than 500 fishes were sampled from 16 localities. Their examination confirmed that the fishes belong to three genus Luciobarbus, Carassobarbus and Ptercapoeta The examination of the gill arches revealed the presence of 24 Dactylogyrus species, including twenty likely new species. One monogenean species collected on the fish gills possessed no anchors in its haptor. Our study also shows a specificity of the parasites at a species level, but also at a lower level with a clear difference between Northern and Southern Atlas monogenean populations of Carassobarbus fritshii



Title: Termites ravageurs des ignames et leur gestion traditionnelle au centre du Bénin

Author(s): LOKO Yêyinou Laura Estelle

Affiliation: Université Polytechnique d'Abomey

Contact: lokoestelle@yahoo.fr

Abstract of the poster / Description of the booth:

Les ignames (Dioscorea spp.) constituent l'une des cultures vivrières qui contribuent à la sécurité alimentaire et à la réduction de la pauvreté au Bénin. Cependant, leur culture se trouve de nos jours confrontée à plusieurs contraintes conduisant au déclin de la productivité et à une perte de diversité. L'infestation et la destruction des tubercules par les termites reste une des contraintes majeur de la production de l'igname au Bénin et spécifiquement au Centre du pays. Au même moment, les termites jouent le rôle de décomposeur de matières organiques et ont une importance alimentaire. Au vue de ces deux rôles antagonistes que peuvent jouer les termites, il est donc important de documenter la perception paysanne des termites comme ravageur de l'igname et documenter les méthodes de lutte traditionnelle dans le but de développer une méthode de lutte efficace contre ces ravageurs. Une étude menée dans 14 villages à travers le centre du Benin a permis d'identifier les principales espèces de termites considérées par les producteurs comme les plus dommageables. Une multitude de méthode de lutte a été recensée dont la plus importante reste l'utilisation d'insecticides chimiques.





Title: Recherche sur les insectes pollinisateurs des écosystèmes forestiers et agricoles du Burundi - Rôle des pollinisateurs dans la sécurité alimentaire

Author(s): Longin Ndayikeza, Alain Pauly, Bénoit Nzigidahera, Alexis Mpawenimana & Shadrack Girukwishaka

Contact: Ndayilkeza2009@gmail.com

Abstract of the poster / Description of the booth:

Les pollinisateurs sont des insectes essentiels à l'entretien de la biodiversité agricole qui assure les moyens d'existence dans le monde en général et au Burundi en particulier. En plus de la pollinisation de nombreuses plantes à fleurs, les abeilles et autres insectes pollinisateurs jouent un rôle essentiel à la conservation de la diversité biologique sauvage et au maintien de leur biodiversité génétique.

Ainsi, La sécurité alimentaire, la diversité des aliments, la nutrition humaine, la santé et les prix des produits alimentaires sont autant d'éléments qui sont fortement tributaires des animaux pollinisateurs. La pollinisation est nécessaire à toute production de graines et de fruits par les plantes à fleurs. Les populations récoltent des graines de certaines cultures pour se nourrir et des fruits quise développent avec la graine. Ces grains sont donc nécessaires à la production de la prochaine génération de cultures et permettent souvent d'améliorer les variétés dans les programmes de sélection des plantes.

Selon le Département des Nations-Unies pour l'Agriculture et l'Alimentation (FAO), 70% des espèces culturales assurant l'essentiel de l'approvisionnement alimentaire mondial sont tributaires des insects pollinisateurs.

C'est par cela qu'au Burundi nous avons commencé les recherches sur les insectes pollinisateurs depuis 2009.





Author(s): Malaisse François

Affiliation: Biodiversité et Paysage, Gembloux Agro-Bio Tech, Université de Liège, Belgique

Contact: malaisse1234@gmail.com , 32(0)81 60 18 13

Abstract of the poster / Description of the booth:

Les lépidoptères, apparus il y a 220 millions d'années constituent un ordre d'insectes. Cent quatre-vingt mille espèces sont reconnues, relevant de 128 familles. Près de 500 espèces sont consommées par l'homme, principalement au stade larvaire (chenilles), de façon plus réduite au stade nymphal des (chrysalides) et de façon plutôt exceptionnelle au stade adulte (abdomen de quelques papillons). Ces espèces représentent 18,3% du total des espèces d'insectes consommés par l'homme. La famille la plus importante est celle des Saturniidae (27,5 % du total des lépidoptèresconsommés). Le terme de « campéophagie » a été proposé pour la consommation de chenilles par l'homme. Celles-ci sont un aliment à forte saisonnalité, qui est toutefois disponible, après séchage, pendant plusieurs mois. Il fait l'objet d'un commerce qui localement atteint plus de 1.600 tonnes de chenilles séchées par an. Cet aliment est énergétique (de l'ordre de 400 à 500 kcal/ 100 g de poids sec) et une source non négligeable de protéines, de lipides, de sels minéraux et de vitamines. Certaines populations reconnaissent plus de 30 espèces différentes, chacune ayant leur nom, et les plantes dont elles se nourrissent sont aussi connues. Les techniques de récolte, de préparation et de consommation sont variées et identifiées. Ainsi pour l'Afrique, une liste de plus de 370 références abordant ce thème a été publiée et son aspect ethnozoologique discuté (Malaisse & Latham, 2015). Une autre étude fait la synthèse des chenilles, chrysalides et papillons dans l'alimentation humaine pour les divers continents (Malaisse, Roulon-Doko, Lognay & Paoletti, 2015). Elle développe de nombreux aspects, tels que des aspects médicinaux et ceux liés à la gestion de leur biodiversité dans le cadre de l'alimentation des populations des régions tropicales.



Title: Use of banana diversity for nutritious diets

Author(s): I. Van den Bergh, B.N. Ekesa, D. Nabuuma, G. Blomme

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Affiliation: Bioversity International

Contact: i.vandenbergh@cgiar.org

Abstract of the poster / Description of the booth:

Vitamin A deficiency (VAD) is the leading cause of preventable blindness in children, with an estimated 250,000-500,000 children becoming blind every year. Half of them die within 12 months of losing their sight, as VAD increases the risk of disease and death from severe infections. In pregnant women, VAD causes night blindness and may increase the risk of maternal mortality. VAD is a public health problem in more than half of all countries, especially in Africa and South-East Asia. Using the whole-of-diet approach and increasing diversity in diets can help prevent such micronutrient deficiencies.

Bioversity International looks into the variability of nutrients in food crops to introduce more nutritious diets that are affordable, culturally acceptable and available year round. Banana (Musa spp.) is the fourth most important crop in least developed countries and a staple food for several hundred million poor people and as such provides an important source of nutrients. For instance in Burundi, Rwanda, Uganda and other parts of East and Central Africa where the food system is banana based, consumption is about 3 to 11 bananas/day/person. This fast growing perennial produces fruit year-round, thus providing food during the hunger gap when other crops are less available. Moreover, as banana plants are tall they create a microenvironment allowing intercropping with up to 60 other food crops.

Over 400 cultivars of banana are grown by smallholders worldwide. These farmers grow in their fields up to 30 cultivars simultaneously. Identification and promotion of naturally occurring pro-vitamin A-rich cultivars has the potential to have significant long-term beneficial impact on the incidence of VAD. Interest in Vitamin A-rich bananas took off in the early 2000s when analyses done by L. Englberger and her collaborators revealed that some orange-fleshed cultivars indigenous to the Pacific region have high levels of Vitamin A precursors. Since banana breeding is difficult and time-consuming, direct introduction or 'fast-tracking' of existing vitamin A-rich banana cultivars is seen to offer substantial savings in terms of both cost and time.



Title: The impact of certification on carbon stocks and biodiversity in smallholder coffee systems: A case study in the Mt Elgon region, Uganda

Author(s): Sofie Fabri, Koen Vanderhaegen, Bruno Verbist and Bart Muys

Affiliation: Division Forest, Nature and Landscape Dep. of Earth and Environmental Sciences, KU Leuven, Celestijnenlaan 200E, 3001 Leuven, Belgium

Contact: koen.vanderhaegen@ees.kuleuven.be

Abstract of the poster / Description of the booth:

The need for food for the fast growing population in eastern Uganda leads to the conversion of previously uncultivated or forested land to intensely cultivated agricultural land. This results in an increased emission of greenhouse gases, deforestation, biodiversity loss and the occurrence of landslides. On top of that climate change is expected to have a negative effect on the yield and quality of Arabica coffee in Uganda, which is the main source of cash for smallholder farmers in the east of the country. An alternative for intensive agricultural systems can be found in agroforestry, such as the coffee-banana systems in the Mount Elgon region in Uganda. Agroforestry is said to provide four main ecosystem services: carbon sequestration and storage, soil enrichment, biodiversity conservation and improved air and water quality. It also mitigates the negative effects climate change has on coffee because shade trees create a cooler microclimate.

Certification is seen as a way to stimulate people to implement sustainable management practices and agroforestry systems and thus protect ecosystem services. The goal of this research was to look at the impact of certification on two ecosystem services, carbon storage and biodiversity conservation, in smallholder coffee gardens in eastern Uganda.

The difference in carbon storage between certified and non-certified fields was studied by looking at five main carbon pools: above- and below-ground biomass carbon, soil organic carbon and carbon in litter and deadwood. Total average carbon stocks in organic certified fields (114.5 ± 35.6 Mg ha-1) are significantly higher than in the matched non-certified fields (100.6 ± 39.8 Mg ha-1). Total average carbon stocks in non-organic certified fields (118.4 ± 57.5 Mg ha-1) are not significantly different from carbon stocks in the matched non-certified fields (118.4 ± 57.5 Mg ha-1) or from the stocks in organic certified fields. When looking at both certification schemes together, certified coffee fields do not have significantly higher carbon stocks than non-certified coffee fields. The trends in the total carbon stocks are mainly due to the soil organic carbon pool, which contributes 63% to the total carbon stock.

Biodiversity conservation was estimated by recording trees, shrub and regeneration species as indicators of slow environmental changes. Ants were collected as an indicator species for the effect of fast environmental changes. Diversity indices for both indicators do not indicate significantly higher richness or diversity in certified fields compared to non-certified fields. Also very little variation in tree species composition was found. The most abundant tree species in coffee gardens are Persea americana Mill. (avocado pear), Cordia africana Lam. and Grevillea robusta A. Cunn. ex R.Br. (silver oak). These species are planted by farmers for fruit, shade, timber or fuel wood. The tree layer in coffee gardens in eastern Uganda is thus currently very man-made.

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Author(s): Koen Vanderhaegen, Bruno Verbist and Bart Muys

Affiliation: Division Forest, Nature and Landscape, Dep. of Earth and Environmental Sciences, KU.Leuven, Celestijnenlaan 200E-2411, 3001 Leuven

Contact: koen.vanderhaegen@ees.kuleuven.be

Abstract of the poster / Description of the booth:

A major constraint to current REDD+ initiatives is the arbitrariness of the operational definition of 'forest'. The UN-REDD+ framework ignores the high potential of other (tree containing) land uses for carbon sequestration and the generation of co-benefits, in contrast to a whole landscape approach known as 'Reducing Emissions from All Land Uses' (REALU). To indicate this potential, carbon stocks and biodiversity were assessed at the landscape scale around Jimma, SW Ethiopia. Notwithstanding the indigenous forests' high carbon stocks per hectare (336.96 ±120.6 Mg C ha-1), 80% of the total carbon stock of the 106 ha assessed landscape window was found to be stored in nonforest land uses. Especially local agroforestry systems, such as managed semi-forest coffee production fragments (179.92 ±38.5 Mg C ha-1), home gardens (106.26 ±16.8 Mg C ha-1) and pole wood plantations (112.36 ±23.9 Mg ha-1) store large amounts of carbon. Together with local maize fields (69.45 ±12.3 Mg C ha-1), teff fields (69.51 ±6.5 Mg C ha-1) and grazing lands (76.90 ±10.3 Mg C ha-1) these non-forest land uses play an important role in a prospective 'high-carbon-stock rural-development' under a REALU framework. The simultaneous assessment of biodiversity, based on tree community composition and Hill's diversity indices, indicated important biodiversity cobenefits under a REALU approach. Biodiversity indices such as the Hill's N1 diversity of abundant tree species showed a strong positive correlation with local carbon stocks (R2=0.56). Since the cover of indigenous forest is reduced to only 7% of the landscape window's area, most of the remaining trees and biodiversity can be found within the surrounding landscape mosaic. Semi-forest coffee production fragments for example still harbour almost half of all encountered native tree species. An interesting result of the simultaneous biodiversity assessment was that a regrouping of plots based on tree biodiversity provides a more precise and cost efficient way to assess carbon stocks, reducing the number of plots needed with 23%, to achieve the same precision level.

Vanderhaegen, K., Verbist, B., Hundera, K. & Muys, B. REALU vs. REDD+: Carbon and biodiversity in the Afromontane landscapes of SW Ethiopia. For. Ecol. Manage. 343, 22–33 (2015)





Title: Biodiversity conservation in social-ecological systems: (mis)matches between conservation discourses & evidence-based conservation

Author(s): Katherine Vande Velde, Jean Hugé, Nico Koedam & Farid Dahdouh-Guebas

Affiliation: Université libre de Bruxelles

Contact: kathvdev@ulb.ac.be

Abstract of the poster / Description of the booth:

Defining 'effective' biodiversity conservation is inhibited by the continued lack of agreement on 'what matters' in conservation. This is leading to a paralysing debate on social and ecological 'best practices' (i.e. conservation methods and objectives), while the need for productive debate, and more integrated and effective biodiversity conservation action remains high and urgent.

As conservation methods and objectives are multidimensional in all social-ecological systems, we propose an open interpretation of 'effectiveness' of biodiversity conservation, based on multiple sources of knowledge and interpretations of what matters in conservation. Our analytic framework consists of the paradigms of: (i) inclusive conservation and (ii) evidence-based conservation.

To map and analyse discourses (integrating ecological and value knowledge) we will use Q methodology (i). To review and summarize evidence-based ecological knowledge spread among experts we will use the Delphi method (ii). Separately, these are wellestablished methods used to move debate to productive grounds and bring new insights (e.g. effectiveness criteria) in different research fields. However, we will innovatively integrate both methods while focussing on effectiveness of biodiversity conservation at the local scale through the use of multi-criteria decision analysis.

By integration we do not intend to 'force' consensus. Instead, we will clarify what combinations of effectiveness criteria –exposed in discourse and expert-based ecological knowledge– would result in more (win-win situation) or less effective (win-lose and lose-lose situations) biodiversity conservation for the locally expressed objectives. We expect to develop a biodiversity conservation methodology applicable to a wide range of terrestrial and aquatic social-ecological systems, but we will use mangrove systems in South-East Asia, differing in management regime and context, as a model in our study.



Title: Swifts Without Frontiers / Martinets sans frontières / Gierzwaluwen zonder grenzen

Author(s): Martine WAUTERS

Affiliation: Natagora, Natuurpunt, Action for Swifts, Swift Conservation, Commonswift Worldwide

Contact: Biodiv.apus@gmail.com - martinets@aves.be - Facebook: Swift Lady

Abstract of the poster / Description of the booth:

BioDIVERSITY is not only in natural reserves, and all birds don't build their nests in trees. Swifts, these fascinating birds that bring joy to our Northern cities, are a good example of that: Each Spring, they migrate up to 10,000 km in order to breed in our... houses! 99% of them only build their nests in building cavities! But those holes tend to disappear, as more and more people isolate their houses, not knowing that they host biodiversity. Even many ornithologists ignore this, and if nothing is done, this could be fatal for these fascinating birds!

More and more "Swift friends", from Ireland to China, militate for "Swift-friendly" buildings. A whole network has even been put into place. But we have very few contacts in the Southern Hemisphere, though Swifts spend most of their lives (9-11 months!) in Africa. As far as we know from our few contacts there, Swifts face different threats in those countries, as they spend their whole lives on the wing when they don't breed (even to drink or sleep!): They are threatened by massive deforestation, which jeopardizes Swifts' only source of food, i.e. flying insects (up to 20,000 a day!). Also, some African people kill & eat Swifts. Sometimes, as a mere "treat", but often to survive. Moreover, war and dire poverty mean that Swift protection is not a priority for most people there. A few years ago, I met Dr Jane Goodall and told her how nice it would be if people from her network in Africa could help gather more information on Swifts. Then I heard about her "Roots & Shoots" youth groups, acting for Animals, People & the Environment. Which gave me the idea of establishing links between youth from both hemispheres using Swifts as a "go-between", sharing and comparing each other's biodiversity and human impact on it, and initiating projects that would help Swifts over the whole range of their lives. Jane Goodall was very enthusiastic about it. This year, a Brussels school (Ecole Jacques Brel, in Jette) had Swift nest-bricks installed on its site. Children were fascinated to hear how these birds live! Now, the school very enthusiastic about starting a transcontinental project.

I have many ideas and useful information for any "candidates", I still need partners and participants, I hope you will join me!





LIST OF PARTICIPANTS

Family Name	First name	Affiliation	Function	E-mail
Agarad	Mariam	RBINS - CEBioS	Secrétariaat CEBioS	magarad@natural- sciences.be
Agbessenou	Ayaovi	Université de Lomé and African Region- al Postgraduate Programme in Insect Science (ARPPIS)	Chercheur	yaovi.eudes@gmail.com
Vandesande	Aranka	KULeuven	Student Biologie (2de Master)	aranka.vandesande@ student.kuleuven.be
Baert	Ella	Province Limburg	Coordinator Biodi- versity	ella.baert@limburg.be
Batur	Fulya	Arche noah, seed savers	Policy Officer	fulya.batur@arche-no- ah.at
Becault	Emilie	The Leuven Centre for Global Governance Studies	Project Manager	emilie.becault@gmail. com
Beudels	Roseline	Royal Belgian Institute of Natural Sciences	Conservation Biology Unit, Head	roseline.beudels@ skynet.be
Bezikofer	Ingrid	Institut Jane Goodall Belgique		ingrid@janegoodall.be
Biot	Pierre	SPF santé publique - DG ENV	Chef de service Affaires Multilatérale et stratégique	pierre.biot@health.fgov. be
Blondel	Nicolas	Prospect Consulting & Services S.A.	Conseiller de pro- gramme Espaces verts, Paysages et Biodiversité	N.Blondel@prospect-cs. be
Bodson	Pascale	Athénée royal de COUVIN	professeur de sci- ences	pascale.bodson@gmail. com
Boisson	Sylvain	Gembloux Agro-Bio Tech	PHD student	sylvainboisson@hot- mail.com
Bolba	Dorina	AJR Couvin	prof. SCIENCES	dorinabolba@yahoo. com
Borghs	Dries	Kardinaal Van Ro- ey-instituut Vorselaar	Leerkracht natuur- wetenschappen	driesborghs@hotmail. com
Bouquet	Michaël	Cabinet de la Ministre Fédérale de l'Energie, de l'Environnement et du Développement durable	Conseiller	Michael.Bouquet@ marghem.fed.be

Family Name	First name	Affiliation	Function	E-mail
Brendonck	Luc	KULeuven		Luc.Brendonck@bio. kuleuven.be
Calcoen	Simon	Vlaamse overheid, departement interna- tionaal Vlaanderen	beleidsmedewerker ontwikkelingssamen- werking	simon.calcoen@ iv.vlaanderen.be
Calfat	Tupac	KULeuven	ICOS	tupac.calfat@kuleuven. be
Camart	Idriss		Etudiant	gabrielid@hotmail.fr
Casino	Ana	CETAF - Consortium of European Taxonom- ic Facilities	GENERAL SECRE- TARY	ana.casino@cetaf.org
Caulier	Guillaume	Université de Mons (Biologie des Or- ganismes Marins et Biomimétisme)	Assistant de recher- che/pédagogique	guillaume.caulier@ umons.ac.be
Chafil	Rajae	Organisation Interna- tionale de la Franco- phonie	chargé du Programme Développement Durable	rajae.chafil@francopho- nie.org
Claerhout	Sofie		student	sofie.cl@hotmail.com
Colsoul	Virginie	Kuleuven	student	virginie.colsoul@stu- dent.kuleuven.be
Coolsaet	Brendan	UCL	Research Fellow	brendan.coolsaet@ uclouvain.be
Coppée	Isabelle	Société royale belge d'Entomologie	Coordinatrice	icoppee@naturalscienc- es.be
Cordonnier	Alain	Service public de Wallonie	Attaché à la Direction de la nature	alain.cordonnier@spw. wallonie.be
Cue Rio	Miriam	Commission eu- ropéenne- DG DEVCO	Responable des politiques	miriam.cue-rio@ec.eu- ropa.eu
Cuypers	An-Katrien	Kuleuven	Student biologie	an-katrien93@hotmail. com
De Croo	Alexander	Belgian Federal Cabinet	Vicepremier en minis- ter van Ontwikkelings- samenwerking	alexander@alexander- decroo.be
De Cupere	Françoise	Vrije Universiteit Brussel	Stafmedewerker Ontwikkelingssamen- werking	fdecuper@vub.ac.be
De Kesel	André	Botanic Garden Meise	senior researcher - mycologist	andre.dekesel@botanic- gardenmeise.be
de Koeijer	Han	RBINS, CEBioS	CHM National Focal Point	hdekoeijer@natural- sciences.be



Family Name	First name	Affiliation	Function	E-mail
De Meester	Sigrid	APEFE	Responsable géo- graphique	s.demeester@apefe.org
De Weerdt	Joëlle	ELI-Scientific	Fondatrice et direc- trice de projet	joelle.deweerdt@eli-s. com
Decadt	Brigitte	BELSPO	Senior advisor	deca@belspo.be
Decock	Cony	Université catholique de Louvain	Curateur MUCL	cony.decock@uclou- vain.be
Decoene	Jozefien		leerkracht biologie derde graad secundair	jozefiendecoene@ hotmail.com
Decru	Eva	Royal Museum for Central Africa	PhD student	eva.decru@africamuse- um.be
Decupere	Barbara	Association de la ville et des communes de la RBC	conseillère	barbara.decupere@ avcb-vsgb.be
Deflem	Lo			io.deflem@student. kuleuven.be
Degreef	Jérôme	Botanic Garden Meise	Head of department	jerome.degreef@botan- icgardenmeise.be
Dekemel	Nicolas			nicolas.dekemel@gmail. com
Dekoninck	Wouter	RBINS - Scientific Service Heritage	Conservator Entomol- ogy Collections	wdekoninck@natural- sciences.be
Demeuldre	Mélanie	Université de Mons	Doctorante	melanie.demeuldre@ umons.ac.be
Denecker	Steffi	KuLeuven	Student	steffi.denecker@telenet. be
Deneve	Sonja	Natuurgids		sonja.jean-marie@ proximus.be
Depoorter	Anne	COCOF	Médecin	depoorterann@yahoo.fr
Devillers	Pierre			sphegodes@hotmail. com
Devillers-Ter- schuren	Jean			j.terschuren@gmail.com
Devuyst	Paul	Revue Athena (Région wallonne)	Journaliste scien- tifique	devuyst.paul@skynet.be
Didden	Lore			lore.didden@student. kuleuven.be
Dierickx	Ludo	Rijksdienst voor Pen- sioenen	logistiek beheerder - Emas verantwoor- delijke	ludo.dierickx@rvp.fgov



Family Name	First name	Affiliation	Function	E-mail
Dierickx	Katrien	KULeuven		katrien.dierickx@hot- mail.com
Donkpegan	Armel	Gembloux Agro-Bio Tech	PhD-Student, FRIA- FNRS	armeloic@gmail.com
Doucet	Jean-Louis	ULG-Gembloux Abt	Professor	jldoucet@ulg.ac.be
Ducroquet	Jean		enseignant de scienc- es naturelles dans le secondaire	jeanducroquet@yahoo.fr
Duez	Pierre	Université de Mons	Professor	pierre.duez@umons. ac.be
Duminil	Jérôme	Bioversity Interna- tional	Chercheur	j.duminil@cgiar.org
Eggermont	Hilde	Royal Belgian Institute of Natural Sciences	coordinator Belgian Biodiversity Platform	h.eggermont@biodiver- sity.be
Elpers	Erika	RVP	verantwoordelijke EMAS	erika.elpers@rvp.fgov. be
Félicien	Tosso	Université de Liège-Gembloux Agro-Bio Tech	Doctorant	dnftosso@ulg.ac.be
Fiagan	Kwasi		consultant	cfiagan@yahoo.co.uk
Flandroy	Lucette	SPF Santé pub- lique, Sécurité de la Chaine alimentaire et Environnement, DG Environnement	Attaché senior Biodi- versité/Biosécurité	lucette.flandroy@envi- ronnement.belgique .be
Flemal	Jacques	ABPPC	retraité	jflemal@hotmail.be
Fonty	Emile	Faculté	Chercheur	emile.fonty@ulg.ac.be
Fourdrilis	Séverine	Royal Belgian Institute of Natural Sciences	PhD student	sfourdrilis@natural- sciences.be
François-Xavier	de Donnea	Virunga Foundation		-
Geelhand de Merxem	Dimitri	Koninklijk Museum voor Midden-Afrika	Projectmedewerker FishBase for Africa	dimitri.geelhand@ africamuseum.be
Germeau	Alexia	APEFE	Responsable Géo- graphique Rwanda Burundi	a.germeau@apefe.org
Geunis	Tine	Royal Belgian Institute of Natural Sciences	Educatief medewerker	tinegeunis@live.be
Gillet	Pauline	foresterie tropicale de Gembloux Agro-Bio Tech	PhD Student	pgillet@ulg.ac.be



Family Name	First name	Affiliation	Function	E-mail
Gios	Gerd	KvRI	leerkracht	gerdjeofgios@hotmail. com
Gordillo	Ana	UCL	PhD student	anygordillo32@hotmail. com
Gorel	Anaïs	Gembloux Agro-Bio Tech - Gestion des Ressources For- estières - Foresterie Tropicale	Doctorante	anais.gorel@ulg.ac.be
Goudeseune	Lise	CETAF - Consortium of European Taxonom- ic Facilities	International Relations Officer	lise.goudeseune@cetaf. org
Grootaert	Patrick	Royal Belgian Institute of Natural Sciences	Head of department	patrick.grootaert@ naturalsciences.be
Gryseels	Guido	Koninklijk Museum voor Midden Afrika	Algemeen Directeur	guido.gryseels@ africamuseum.be
Harmegnies	Dimitri	DEVCO	Programme Manager	Dimitri.Harmegnies@ ec.europa.eu
Hendrickx	Katrien	Provinciaal Natu- urcentrum	Coördinator Limburgs Veldstudiecentrum	katrien.hendrickx@ limburg.be
Heughebaert	André	Belgian Biodiversity Platform	GBIF Node	a.heughebaert@biodi- versity.be
Heus	Corinne	Direction Generale Coopération au Dével- oppement	Direction Société Civile - chef de service Afrique Centrale et australe	corinne.heus@diplobel. fed.be
Hick	Aurélie	ULg - Gembloux Agro-Bio Tech	PhD Student	aurelie.hick@ulg.ac.be
Hiergens	Thomas	DGD	Attaché Ontwikkel- ingssamenwerking	thomas.hiergens@ diplobel.fed.be
Hoffmann	Maurice	INBO		maurice.hoffmann@ inbo.be
Hugé	Jean	Université Libre de Bruxelles	Postdoctoral Research Fellow	Jean.Huge@ulb.ac.be
Huybrechts	Pierre	Belgian Biodiversity Platform	Science Communica- tion Officer	p.huybrechts@biodiver- sity.be
Huyse	Tine	КММА	onderzoeker	tine.huyse@africamuse- um.be
Ibanda Kabaka	Paulin	Université de Bor- deaux	Doctorant	ibandapaulin@yahoo.fr

Family Name	First name	Affiliation	Function	E-mail
Istasse	Maud	FPS Health, Food Chain Safety and Environment	Senior Adviser	maud.istasse@envi- ronnement.belgique.be
Jacques de Dixmude	Arnold	European Commis- sion, DEVCO	International Cooper- ation Officer	Arnold.JACQUES-DE- DIXMUDE@ec.europa. eu
Jamin	Vincent	Karel de Grote-Hoges- chool	Leerkracht secundair onderwijs natuur- wetenschappen - biologie	jaminvincent1@hotmail. com
Jamin	Luc	GIB	Leraar secundair Natuurwetenschappen - Aardrijkskunde	luc.jamin@telenet.be
Janssens de Bisthoven	Dorothée	Psychologische Praxis Bruxelles	Psychotherapist, Trainer & Supervisor for psychosocial issues in Belgium and Nepall	mail@psychologische- praxis-bruxelles.eu
Janssens de Bisthoven	Luc	RBINS - CEBioS	Coordinator CEBioS	ljanssens@natural- sciences.be
Joris	Julien	School Stella Maris Merksem	Leerkracht Biologie	jorisjulien@hotmail.com
Kabashi	Fabian	Académie de Re- cherche et d'Ensei- gnement supérieur – ARES	Information - Commu- nication	fabian.kabashi@ares- ac.be
Kasongo wa ngoy kashiki	Bill	Campus de Lubum- bashi	chercheur	billkasongo@gmail.com
Kempeneers	Serge	Bruxelles environne- ment/ Leefmilieu Brussel	directeur	skempeneers@envi- ronnement.brussels
Kenko Nkon- tcheu	Daniel Brice		Etudiant	bricekenko@yahoo.com
Kock	Richard	UCL	Professor Wildlife Health and Emerging Diseases	rkock@rvc.ac.uk
Kuypers	Marine	Commune Auderghem	Eco-conseil	mkuypers@environne- ment.irisnet.be
Lagnika	Moïssou	Université d'Abom- ey-Calavi	chercheur	moissou@yahoo.fr
Lambin	Tatiana	WWF European Policy Office (EPO)	Development Policy and Finance Assistant	tlambin@wwf.eu



Family Name	First name	Affiliation	Function	E-mail
Lauvergnat	Alix	Tournesol_zonneblo- em asbl	animations environne- ment (chargee de projets biodiversite pour les ecoles en region bruxelloise)	alixlauvergnat@tourne- sol-zonnebloem.be
Ledant	Jean-Paul		Consultant indépen- dant	ledantjp@outlook.com
Lenata	Francesca	Botanical Garden Meise		francesca.jbm@gmail. com
Leponce	Maurice	Royal Belgian Institute of Natural Sciences	Chercheur	Maurice.Leponce@ naturalsciences.be
Leyssens	David	The Shift	Co-CEO	david.leyssens@the- shift.be
Loddewyck	Liesbeth	DGD		liesbeth.loddewykx@ diplobel.fed.be
Loko Yeyinou	Laura Estelle	Faculté des Scienc- es et Techniques de Dassa	Chercheur	lokoestelle@yahoo.fr
Lonjon	Joelle			jlonjon@hotmail.com
Lonjon	Julien			julon@hotmail.fr
Lopez	Valentina		Etudiant	valentina9766@hotmail. com
Loubota	Grace		Doctorant	gracejopaul. loubotapanzou@doct. ulg.ac.be
Louette	Michel	Koninklijk Museum voor Midden-Afrika, Tervuren	Ere-departement- shoofd KMMA	michel.louette@telenet. be
Loufa	Yassine	RBINS - CBD National Focal Point	Secretariat NFP biodi- versity	yassine.loufa@natural- sciences.be
Lushombo	Joseph	Université Officielle de Bukavu	chercheur	lushomate@yahoo.fr
Luyten	Niels	Faculteit Wetenschap- pen, Master in de Biologie, KU Leuven	Masterstudent	luyten.niels@hotmail. com
Maebe	Sigrid	Royal Belgian Institute of Natural Sciences	Science communi- cator	smaebe@naturalscienc- es.be
Maes	Tim	Kuleuven	student	tim.maes@student. kuleuven.be
Magat	Deborah			deborah.magat@ bluewin.ch

Family Name	First name	Affiliation	Function	E-mail
Malaisse	François			malaisse1234@gmail. com
Martin	Patrick	Institut royal des sciences naturelles de Belgique	Chef de travaux principal	patrick.martin@scienc- esnaturelles.be
Meerts	Pierre	ULB	Ordinary Professor	pmeerts@ulb.ac.be
Merckx	Jonas		Student	jonas.merckx@hotmail. com
Mertens	Lenni			lennimertens@hotmail. com
Mertens	Arne	KU Leuven	Student	arne_mertens@hotmail. com
Mertens	Philippe	Association de la ville et des communes de la Région de Brux- elles-Capitale	Conseiller développe- ment durable	philippe.mertens@avcb- vsgb.be
Michel	Louis		Minister of State, Member of the Euro- pean Parliament	
Michetti	Tina			tinamichetti@hotmail. com
Monnens	Marlies	KULeuven		marlies.monnens@ student.kuleuven.be
Monzenga Lokela	Jean Claude	IFA-Yangambi	Chercheur	claumonz@yahoo.fr
Morin-Rivat	Julie		Doctorante	jmorin@doct.ulg.ac.be
Mortier	Julien			julien.mortier@hotmail. com
Ndayikeza	Longin	Université du Burundi, Faculté des Sciences	chercheur	ndayilo2009@yahoo.fr
Nguyen	Bach Kim	University of Liège (ULG)	Advisor of the 1st Vice-Rector	bk.nguyen@ulg.ac.be
November	Eva	Royal Museum for Central Africa	Diensthoofd Ontwik- kelingssamenwerking	eva.november@af- ricamuseum.be
Papleux	Pascale	Secrétariat general de l'enseignement catholique	conseillère péda- gogique en sciences (Segec)	pascale.papleux@ segec.be
Paulus	Eline	KULeuven	Student Master Biologie	elinepaulus@hotmail. com



Family Name	First name	Affiliation	Function	E-mail
Pauly	Daniel	University of British Columbia	Professor of Fisheries	d.pauly@fisheries.ubc. ca
Peeters	Marc	VBD-Nationaal knoop- punt	Attaché	marc.peeters@natural- sciences.be
Piazzalunga	Guillaume			guillaumepiazzalunga@ hotmail.com
Pinton	Vincent	RBINS - CEBioS	ACCOUNTANT	vincent.pinton@natural- sciences.be
Pironio	Enrico	European Commis- sion, DEVCO		-
Pisani	Camille	Royal Belgian Institute of Natural Sciences	General Manager	
Povilaityte-Petri	Vitalija	Université de Mons	Collaborateur scien- tifique	vitalija.povilaityte-petri@ hotmail.com
Rahmouni	Imane		Doctorante	imanita.25@hotmail.fr
Rebut	Elise	Conservation Interna- tional - Europe	Senior Manager	erebut@conservation. org
Renguet	Laurie	tournesol asbl	animations environne- ment (chargee de projets biodiversite pour les ecoles en region bruxelloise)	laurie.renguet@gmail. com
Rochette	Anne-Julie	RBINS - CEBioS	Biodiversity pro- gramme officer	ajrochette@natural- sciences.be
Rochette	Ludo	DGD - FOD Buiten- landse Zaken & Ontwikkelingssamen- werking	1° Secretaris Interna- tionale samenwerking	Ludo.Rochette@diplo- bel.fed.be
Roisin	Yves	Université Libre de Bruxelles	Chercheur	Yves.Roisin@ulb.ac.be
Roose	Patrick	Operationele Directie Natuurlijk Milieu - Koninklijk Belgisch Instituut voor Natuur- wetenschappen	Directeur Opérationnel	patrick.roose@natural- sciences.be
Rossillon	Catherine	WCS	Policy Officer	crossillon@wcs.org
's Hertogen	Annelies	Campus De Beeltjens	Leerkracht	annelies.s.hertogen@ gmail.com
Schlesser	Marianne	Royal Belgian Institute of Natural Sciences	Executif Secretary CBD NFP	marianne.schlesser@ naturalsciences.be
Family Name	First name	Affiliation	Function	E-mail
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Sebrechts	Thomas			thomas.sebrechts@ student.kuleuven.be
Segers	Hendrik	RBINS - CBD National Focal Point	Coordinator NFP Biodiversiteit	hendrik.segers@natural- sciences.be
Sérusiaux	Emmanuël	Université de Liège; Natagora	Professeur à l'Uni- versité de Liège; Prési- dent de Natagora	E.Serusiax@ulg.ac.be
Singh	Jaskaran- deep	ULB	Student	jasingh@ulb.ac.be
Snoeks	Jos	КММА		jos.snoeks@africamu- seum.be
Stiers	Iris			istiers@vub.ac.be
Stroeken	Koen	Ugent		Koen.Stroeken@UGent. be
Stynen	Hanna		student KU Leuven	hanna.stynen@student. kuleuven.be
Susini	Marie-Lucie	RBINS - CEBioS	Biodiversity pro- gramme officer & GTI NFP	mlsusini@naturalscienc- es.be
Thiry	Valentine	Université libre de Bruxelles	Doctorante en Sci- ences biologiques (Primatologie)	valentinethiry89@gmail. com
Thomas	Marlène	FOD BuZA en Ontwik- kelingssamenwerking	ambtenaar Fod Buitenlandse Zaken	marlene.thomas@diplo- bel.fed.be
Tsiresy	Gaëtan	Université de Mons	Doctorant	tsiresygaetan@gmail. com
Ursini	Régis	URBIOS	ecologue	ursini.regis@gmail.com
Van Aken	Mia	DGD		Mia.VanAken@diplobel. fed.be
Van Camp	Laura			laura.vancamp1@stu- dent.kuleuven.be
Van de Velde	Els	Department LNE	Beleidsmedewerker internationaal beleid	els.vandevelde@Ine. vlaanderen.be
Van de Water	Hans	VLIR-UOS		Hans.VandeWater@ vliruos.be
Van den Bergh	Inge	Bioversity Interna- tional	Senior Scientist	i.vandenbergh@cgiar. org
Van den Dries	Jolien			jolien.vandendries@ student.kuleuven.be

Family Name	First name	Affiliation	Function	E-mail
Van der Avort	Annemarie			annemarie.vander- avort@diplobel.fed.be
Van Geit	Mone	WWF Belgium	Project Manager Inter- national Program	mone.vangeit@wwf.be
Van Impe	Maurah	KUL, Biologie	master student	maurah.vanimpe@ studen.kuleuven.be
Van Kemenade	Gaby			gabyvankemenade@ hotmail.com
Van Kerck- hoven	Liesbeth			Liesbeth.vankerck- hoven@gmail.com
Van Nuffel	Nicolas	CNCD		Nicolas.VanNuffel@ cncd.be
Van Osselaer	Christian	Biofirst	CEO	cvo@floridienne.be
Vande Velde	Katherine	U.L.B.	Doctoraatstudent	kathvdev@ulb.ac.be
Vandelook	Filip	Agentschap Planten- tuin Meise	Onderzoeker	filip.vandelook@br.fgov. be
Vandeputte	Renata	DGD		Renata.Vandeputte@ diplobel.fed.be
Vanderhaegen	Koen	KU Leuven, Departe- ment Aard- en Om- gevingswetenschap- pen, Afdeling Bos, Natuur en Landschap	Doctoraatsstudent	koen.vanderhaegen@ ees.kuleuven.be
Vandermeersch	Victoria			victoriavander- meersch@gmail.com
Vanelderen	Niels		Masterstudent	niels.vanelderen@ hotmail.com
Vanhoof	Marie	K.U.Leuven	student	marie.vanhoof@student. kuleuven.be
Vanhove	Maarten	RBINS - CEBioS	Wetenschapper	maarten.vanhove@natu- ralsciences.be
Vanhove	Jean-Marie	Natuurgids		sonja.jean-marie@ proximus.be
Velghe	Frauke	Odisee	Mobility Coordinator (OS)	frauke.velghe@odisee. be
Verbist	Bruno	KULEUVEN - KLIMOS	KLIMOS project leader	Bruno.Verbist@ees. kuleuven.be
Verheyden	Dorothy	K.U.Leuven	Student	dorothy.verheyden@ student.kuleuven.be

CEBioS[•]

Family Name	First name	Affiliation	Function	E-mail
Verheye	Marie	Royal Belgian Institute of Natural Sciences	Phd student	mverheye@natural- sciences.be
Verheyen	Erik	Royal Belgian Institute of Natural Sciences	Onderzoeker	erik.verheyen@natural- sciences.be
Verlinden	Peter	VRT		peterverlinden@telenet. be
Versluy	Maxime			MaximeYGO@gmail. com
Vertriest	Isabelle	WWF	coordinator Interna- tional Peograms	isabelle.vertriest@wwf. be
Veys	Lien		Student Biologie	lien.veys@student. kuleuven.be
Vincke	Barbara	DGD		Barbara.Vincke@diplo- bel.fed.be
Vrancken	Elien			elien.vrancken@student. kuleuven.be
Vreven	Emmanuel	Koninklijk Museum voor Midden Afrika	Onderzoeker	emmanuel.vreven@ africamuseum.be
Wallens	Sabine	SPF Santé publique, Sécurité de la Chaîne alimentaire et Envi- ronnement	Expert Biodiversité	Sabine.Wallens@envi- ronnement.belgique.be
Wauters	Martine	Aves-Natagora	Spécialiste bénévole des martinets	biodiv.apus@gmail.com
Weckx	Margo	Biologie kul	Student	margo_weckx@hotmail. com
Wevers	Jolien	K.U.Leuven	Student	wevers.jolien@hotmail. com
Willems	Toon	K.U.Leuven	Student Biologie (2de jaar Master)	toonwillems8@hotmail. com
Wilmet	Leslie		Doctorante	leslie.wilmet@hotmail. com

