



Texts

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Conservation Research in Belgium, 2013, 38p.

Photography

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Foreword

*“What is Conservation Biology?
Although crisis oriented, conservation biology is
concerned with the long-term viability of whole systems. (...)
The intellectual challenges are fascinating, the opportunities
plentiful, and the results can be personally gratifying”.*
M.E. Soulé, 1985¹

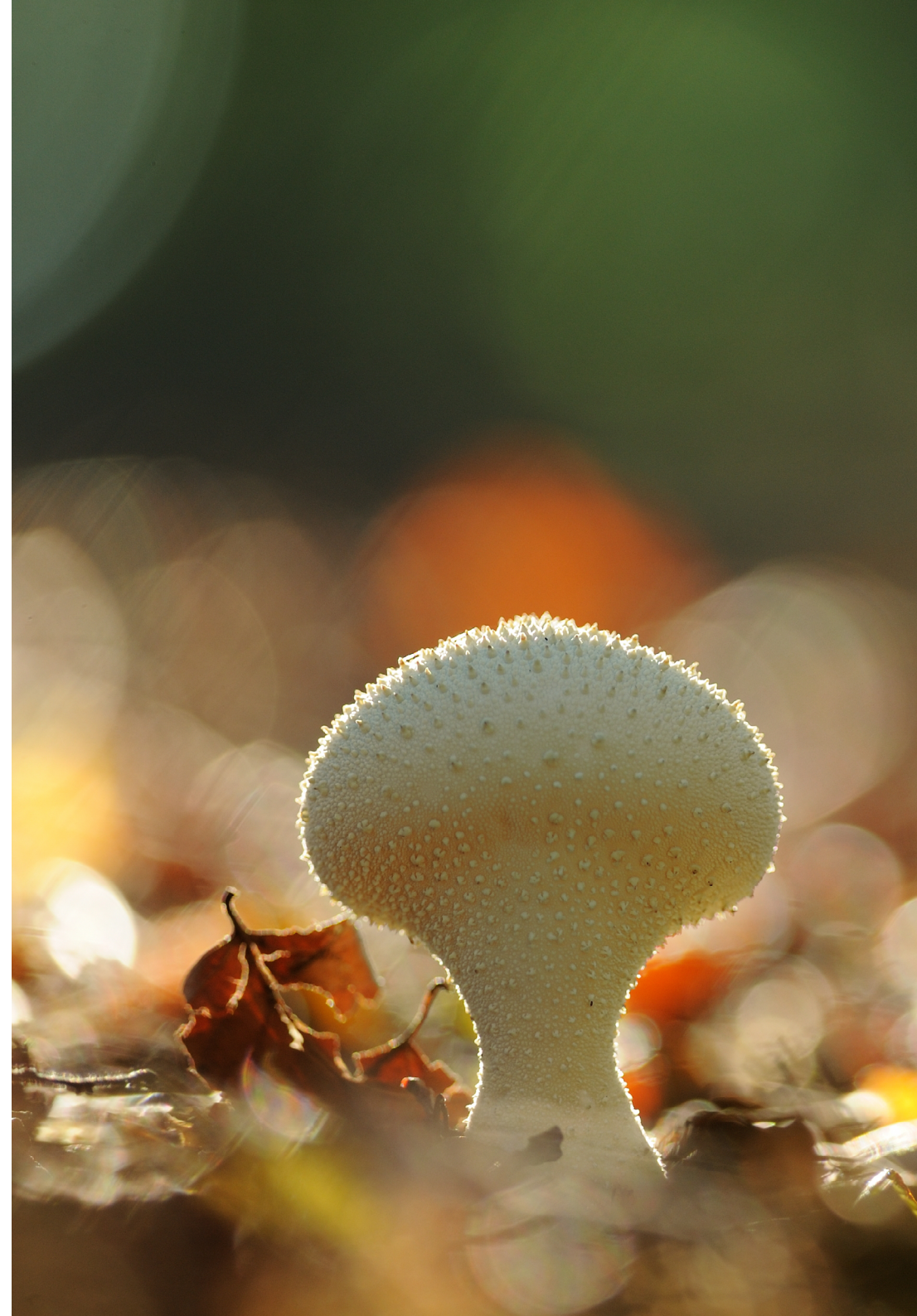
Conservation Research embraces a wide range of disciplines from natural to social sciences, economics, education, politics and environmental law. It has increasingly gone beyond assessing the number of species in an area or mapping specific habitats, despite that these remain an essential basis. All these disciplines address issues fundamental to current conservation practices: they develop knowledge that may be used in support of maintaining and restoring biodiversity. However, the potential of conservation research is only effectively realised when results are implemented in conservation policy and practices.

This brochure, edited for the 2013 ‘Conservation Research Matters’ conference, gives an overview of the expertise in Belgian universities, research institutes and organisations. It is intended not only to showcase, but also as a concrete tool for the diversity of actors working in this field. We hope that this brochure can be useful to strengthen and expand the networks and collaborations of research teams, as well as to decision makers and practitioners who wish to underpin their conservation actions with scientific evidence.

The scientific support for conservation is not produced by the research community alone. Over the past years, an increasing number of conservation scientists have advocated the co-production of knowledge through collaborative learning between diverse actors, from researchers to policy makers, practitioners and private companies. As such, we hope the brochure will contribute to this collaborative process and prove to be a significant support to the sustainable conservation of biodiversity.

The Belgian Biodiversity Platform

¹ Michael E. Soulé (1985) « What is Conservation Biology ? » BioScience 35(11) pp 727-734.



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For the list of research institutes, universities and organisations, please refer to the index p.38





Science-Policy organisations,
Research institutes and NGOs



Belgian Science Policy Office

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City

Brussels

The mission of the Belgian Science Policy Office (Belspo) is to develop, implement and evaluate a federal science policy. For that purpose, it finances and manages research programmes, actions and scientific infrastructures likely to produce sound policy-relevant knowledge and data.

Belspo contributes to develop conservation science through varied initiatives such as:

- A multi-year framework programme for research (BRAIN-be) of which one component (axis 1) covers research projects in support of management and sustainable use of biodiversity and ecosystems.

- Financial support and management of the Belgian Biodiversity Platform (see below)

- A research programme for Earth observation (STEREO II) which aims at developing a Belgian Earth observation expertise as a contribution to global monitoring of vegetation and evolution of terrestrial ecosystems and as a support to environmental management (water, soil, forests, coastal areas, urban, and sub-urban areas).

- A microbial genetic resources centre (BCCM), consortium of culture collections of bacteria, yeasts, fungi, plasmids, etc. which are maintained and documented, notably for applied micro-biology purpose including conservation and restoration of degraded ecosystems.

- The assistance of two main federal scientific institutions depending on Belspo: the Royal Belgian Institute of Natural Sciences (RBINS) and the Royal Museum for Central Africa (RMCA) in their administrative management, in the coordination of their research activities and in the valorisation of their collections.

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Belgian Biodiversity Platform The Belgian Biodiversity Platform provides services to the Belgian scientific community engaged in biodiversity research. The organisation is a Belgian Federal Science Policy Office (BelSPO) initiative that works in cooperation with Belgian federated authorities.

Through contacts with scientists, policy makers and stakeholders, the Belgian Biodiversity Platform organises consultations, expert meetings and horizon scanning exercises to identify strategic developments of existing activities as well as new issues related to the conservation of biodiversity and its components.

In relation to conservation per se, the Belgian Biodiversity Platform animates several forums which are Communities of Practice: active interdisciplinary groups of researchers, policy makers and stakeholders who collaborate on specific topical issues related to biodiversity (eg.: invasive alien species, freshwater, ecosystem services, etc). Beyond the opportunity given to scientists working on the same issues to connect and reinforce their research, the forums transfer research results into the policy sphere and enable the active participation of concerned stakeholders into research planning and execution.

Conservation expertise: freshwater / invasive alien species / marine environment / polar / collections and taxonomy / ecosystem services



National Botanic Garden of Belgium

www.br.fgov.be

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City

Meise

Seed Bank The 'National Botanic Garden of Belgium' manages the only Belgian seed bank dedicated to the ex situ conservation of wild species. This seed bank helps Belgium to fulfil its commitments to the Convention on Biological Diversity (Article 9) and the Global Strategy for Plant Conservation (Goal 8). Unlike other ex situ techniques, the seed bank is the only tool ensuring the long-term storage of a high genetic diversity in a limited space. These seed samples are available for research and reintroduction programmes. Regular tests on seed viability, vigour and germination are carried out as part of the ordinary management and research activity programmes associated with the seed bank. The seed bank team is involved in climate change-related research projects as well as in ecological restoration in Belgium and central Africa, making the link between ex situ and in situ conservation, mainly focusing on the red-listed species of the Belgian flora and the endemic species of Katanga (DR Congo).

Conservation expertise: Urban environment / forests / tropical environment / polar environment / freshwater / restoration / invasive alien species / climate change / collections and taxonomy / governance

Geographical areas of expertise: Brussels-Capital region / Flanders / Wallonia / Belgium / Africa / Antarctic

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City

Meise

European Flora Vascular Plants The conservation research projects carried out at 'European Flora' focus on the study of the key factors implied in the conservation of fragmented populations of rare or declining plant species in Belgium (listed in the European Habitat Directive or in regional red lists), involving the study of (1) demographic and vegetation dynamics in relation to environmental factors and restoration management; (2) population genetic diversity and spatial genetic structure (including genetic rescue); and (3) pollen dispersal and connectivity through biological corridors. Model species are *Helosciadium repens* (including the relationships with its congener *H. nodiflorum*), *Luronium natans* (with INBO), the heterostylous *Primula* species (with VUB), fen and bog species (with Univ. Mons and UCL) and the endemic *Sempervivum funckii* var. *aqualiense*.

Conservation expertise: Urban environment / invasive alien species / collections and taxonomy

Geographical areas of expertise: Belgium

Royal Belgian Institute of Natural Sciences

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The ‘Royal Belgian Institute of Natural Sciences’ (RBINS) multidisciplinary research focuses on biodiversity and mechanisms involved in the evolution of life; land, freshwater and marine ecosystems; History of life, the climate and human installations; Geology of Belgium and modelling the North Sea. It provides scientific expertise under Belgium’s international commitments in relation to environmental protection, it develops tools and methods for monitoring natural land or marine environments and offers advice for the development of national and European policies for the protection and conservation of biotopes and biodiversity. It conserves 37 million specimens as Belgian heritage of universal significance and research references.

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City

Brussels/ Ostend

Operational Directorate Natural Environment RBINS ‘Operational Directorate Natural Environment’ hosts research teams active in diverse fields of conservation research, both in marine and terrestrial environments. One axis of research analyses patterns in biodiversity and drivers of biodiversity loss, in support of policy aimed at mitigating impact of global change. The focus is on ecosystem degradation, habitat fragmentation, and invasive alien species, and the consequences of these on local and/or threatened species, in the framework of international environmental agreements and legislation. Some of the specific issues dealt with are: conservation and restoration of large mega faunas (primates, large carnivores, cetaceans, birds) worldwide with a focus on Africa and Asia, including arid lands; rainforest invertebrates (ants, termites); and macroinvertebrates of European ponds. The marine research assesses impacts of industrial activities at sea (e.g. offshore wind farms). The ‘Ringing Centre’ studies mid- and long-term dynamic trends in bird populations, and holds a vast resource of quality bird capture/recapture data and observations for which it relies on an extensive network of collaborators. It focuses on fragile species and management of invasive bird species. The ‘Belgian Marine Data Centre’ (BMDC) manages data pertaining to the marine environment and the marine life.

Conservation expertise: Tropical environment / polar environment / marine conservation / freshwater / invasive alien species / climate change / collections and taxonomy / governance / long-term monitoring

Geographical areas of expertise: Belgium / Europe / Africa / South America / Antarctic / Asia / Global

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City

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Development Cooperation and Biodiversity The ‘Development Cooperation and Biodiversity’ at RBINS is a centre of excellence for capacity building and development in developing countries involved in research, training, mainstreaming, dissemination, awareness raising, and policy advice on the conservation and management of biodiversity (species, ecosystems, genetical diversity through the Protocol of Nagoya). This is organised through a.o. calls for short grants, workshops, trainings, dedicated projects, campaigns and publications.

Capacity building on the Clearing House Mechanism (web-based information dissemination network) in national focal points for biodiversity and in the context of the Global Taxonomy Initiative (GTI) is undertaken under the umbrella of the Rio Convention on Biological Diversity. The ‘Development Cooperation and Biodiversity’ is involved in institutional strengthening with selected partners in nature conservation. The activities are funded by DGD, as part of the implementation of the Aichi targets, the National Belgian biodiversity strategy and the EU 2010-2020 strategy for Biodiversity.

Conservation expertise: Forests / tropical environment / marine conservation / freshwater / restoration / ecosystem services / governance / public perception and awareness

Geographical areas of expertise: Africa / Central America / South America / Asia



Congo Biodiversity Initiative

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Congo Biodiversity Initiative (CBI) The ‘Congo Biodiversity Initiative’ (CBI) is an open knowledge platform, set up by the Royal Museum for Central Africa, the Royal Belgian Institute of Natural Sciences, the National Botanic Garden of Belgium, and the University of Kisangani. It provides a venue to the many national organisations, local authorities, research institutes, and NGOs involved in the study, protection, conservation, and sustainable use of the unique biodiversity of the Congo Basin. It gives them an easy-to-use, fast, and efficient tool for discussing and streamlining their activities. The CBI website gives an overview of projects and initiatives targeting the Congo basin diversity. The CBI actively works to stimulate new collaborations and synergies. Regular newsletters are sent to the growing CBI community with updates and news of relevant activities.

Conservation expertise: Tropical environment

Geographical areas of expertise: Africa

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City

Tervuren

Africa harbours an immense diversity of species and ecosystems of global importance. The Royal Museum for Central Africa (RMCA) biologists study the taxonomy and phylogeny of different vertebrate and invertebrate groups, and investigate the role of trees and animals in different ecosystems with emphasis on sustainable management of natural resources. Using molecular techniques, scientists also gather genetic information. All contribute to enhance and disseminate knowledge about African biodiversity through different channels, such as publications, web based and open access databases, and training sessions.

Conservation expertise: Agriculture / forests / tropical environment / marine conservation / freshwater / collections and taxonomy

Geographical areas of expertise: Africa

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City

Tervuren

Cyber-taxonomy The Cyber Taxonomy service works on mobilising, sharing and publishing biodiversity related information. Its main activities are hosting and implementation of websites and data portals, Geographic information systems, web services, Collection management and digitalisation. Additionally capacity building, best practice guidelines and adherence to standards in these domains are part of these services. Furthermore the group acts as helpdesk for project submission and management (especially EU projects) and represents the museum in many Biodiversity related experts groups, nationally and internationally such as the Consortium of Taxonomic Facility (CETAF) and the Biodiversity Information Standards (TDWG). The service also contributes substantially to the activities of the Global Biodiversity Information Facility (GBIF) and the Catalogue of life. A highlight is Central African Biodiversity Network (CABIN) financed by the Belgian Cooperation.

Conservation expertise: Tropical environment / freshwater / climate change / ecosystem services / collections and taxonomy / governance / environmental law / public perception and awareness

Geographical areas of expertise: Belgium / Europe / Africa

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City

Tervuren

Ichthyology Unit The research unit 'Ichthyology' focuses on biodiversity research on fresh and brackish water fishes in Africa, including studies on systematics, evolution, ecology and anthropogenic impact. In addition, the group assumes responsibility for the content on these fishes in FishBase (www.fishbase.org). The group has collaborated with IUCN for the Red List assessments of the threats and conservation status of African fishes for over a decade. A special programme is currently running to update old assessments, to verify missing species, and to analyse the meta-data.

Conservation expertise: Tropical environment / freshwater / collections and taxonomy

Geographical areas of expertise: Africa

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City

Tervuren

Laboratory of Wood Biology Forest ecosystems consist for the major part of wood. The 'Laboratory of Wood Biology' of the RMCA aims at a better understanding of structure and function of a forest through wood analysis. Wood biology analyses the anatomical structure of lignified tissues (wood anatomy) and the growth processes of trees (dendrochronology). The 'Laboratory of Wood Biology' studies in particular tropical African trees and other ligneous plants. As such, this work contributes to forest ecology and underpins sustainable production of wood in tropical Africa. The field of research include (1) the wood anatomical functional traits of Central African species, (2) the growth of trees; (3) the ecology and physiology of tropical trees; and (4) the archaeobotany and history of ancient forests through analysis of charcoal present in the soil. These scientific services include the wood identification for CITES timbers.

Conservation expertise: Forests / collections and taxonomy / wood identification / biosphere reserves in DRC / functional traits / REDD+

Geographical areas of expertise: Brussels-Capital region / Flanders / Wallonia / Belgium / Europe / Africa / North America / Central America / South America / Antarctic / Asia / Oceania



Research Institute for Nature and Forest

www.inbo.be

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City

Brussels

The 'Research Institute for Nature and Forest' (Instituut voor Natuur- en Bosonderzoek, INBO) is the Flemish research and knowledge centre for nature and its sustainable management and use. INBO conducts research and supplies knowledge to all those who prepare or make the policies or are interested in them. As a leading scientific institute, INBO works for the Flemish government primarily, but also supplies information for international reporting and deals with questions from local authorities. In addition, INBO supports organisations for nature management, forestry, agriculture, hunting and fisheries. INBO is a member of national and European research networks. It makes its findings available to the general public.

Conservation expertise: Urban environment / agriculture / forests / freshwater / restoration / new and analogue ecosystems / invasive alien species / climate change / ecosystem services / governance / public perception and awareness

Geographical areas of expertise: Flanders



Service Public de Wallonie (SPW)

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City

Gembloux

The 'Natural and Agricultural Environmental Studies Department' (Département de l'Etude du milieu naturel et agricole DEMNA), draws up and co-ordinates programmes in Wallonia for acquiring, validating, using, and disseminating socio-economic and environmental data in the areas of agriculture and the environment. Within this Department, the Nature and Water Direction copes with the management and monitoring programmes of waters, natural habitats, protected species and biodiversity conservation. It also advises the Walloon Government on the Natura 2000 network, prepares LIFE programmes and monitors the efficiency of conservation policies. The Biodiversity in Wallonia Information Server disseminates biological information, promotes interaction exchanges amongst specialists, nature-lovers, the administration, etc. It answers the many questions concerning the natural heritage in Wallonia. An online tool is available to administration officials and naturalists for encoding biodiversity observations.

Conservation expertise: Urban environment / agriculture / forests / freshwater / restoration / new and analogue ecosystems / invasive alien species / climate change / ecosystem services / collections and taxonomy / governance / environmental law / public perception and awareness

Geographical areas of expertise: Wallonia



Royal Zoological Society of Antwerp

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City

Antwerp

Center for Research and Conservation The 'Centre for Research and Conservation' (CRC) of the Royal Zoological Society of Antwerp (RZSA) is a research institute for conservation research, focusing on intensively managed populations in zoos and field-based conservation programmes. Most of the research projects use interdisciplinary approaches to investigate factors that influence demographic and genetic population structure, and aim towards achieving more efficient management of, and sustainability for captive and wildlife populations.

The primary research topic in the RZSA field-based conservation projects in Brazil and Cameroon is primate ecology. These research-based projects contribute to the protection of primates and their habitats and to the sustainable use of natural resources by means of fundamental and applied ecological research in combination with capacity building, community-based conservation and promoting the sustainable use of natural resources.

Conservation expertise: Forests / tropical environment / freshwater / restoration / public perception and awareness

Geographical areas of expertise: Flanders / Africa / South America



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City

Mechelen

'Natuurpunt Studie' is the research section of Natuurpunt, the largest nature conservation NGO in Flanders. Natuurpunt Studie coordinates several thousands of volunteer naturalists and ten thematic working groups throughout Flanders. The main focus is on citizen science projects collecting information about distribution and abundance (trends) of species. The main tool is the data-portal www.waarneming.be, which has been running for 5 years and contains over 9 million faunistic and floristic data on birds, amphibians, reptiles, mammals (including bats), plants, fungi, but also invertebrates like butterflies, dragonflies, grasshoppers, wild bees, etc. An overview of the projects is available at www.telme.be. Natuurpunt Studie also focuses on conservation biology and there is ample hands-on experience in the restoration of threatened species and habitats. Daily short biodiversity news are provided to the general public through www.natuurbericht.be.

Conservation expertise: Urban environment / agriculture / forests / freshwater / restoration / invasive alien species / climate change / governance / public perception and awareness / citizen science

Geographical areas of expertise: Brussels-Capital region / Flanders / Europe



Universities

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City
Leuven

Ecology, Evolution and Biodiversity Conservation Section With over 90 academic researchers and technical staff, the Division of Ecology, Evolution and Biodiversity Conservation is an important centre of expertise regarding all major aspects of biodiversity research worldwide. The major taxonomic groups are covered including micro-organisms, invertebrates, vertebrates and plants, from both terrestrial and aquatic ecosystems. Research areas range from community ecology to evolutionary ecology, behavioural and stress ecology, pollination ecology, taxonomy, archaeobiology, conservation biology, genetics and speciation. In an era that is confronted with increasing anthropogenic impact on biodiversity, this research finds societal relevance in application in nature conservation, sustainable development, and water and wildlife management. Among the techniques that are regularly used are molecular markers, genomics, video-assisted behavioural observations, biostatistics and modelling.

Conservation expertise: Urban environment / forests / tropical environment / marine environment / freshwater / restoration / invasive alien species / climate change / ecosystem services / collections and taxonomy / governance

Geographical areas of expertise: Wallonia / Belgium / Europe / Africa / South America / Oceania

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City
Heverlee

Plant ecology, nature conservation & urban green (PLANa) The focus of the Plant ecology, nature conservation & urban green (PLANa) research group is on the biodiversity (mainly plant species), structure and functioning of natural and manmade ecosystems and the sustainable management of these natural resources at different spatial and temporal scales. The teaching includes the conservation and management of nature, forests and urban green are central themes. PLANa pertains to the Department of Earth and Environmental Sciences, Forest, Nature and Landscape (FNL) Division of KU Leuven.

Conservation expertise: Urban environment / forests

Geographical areas of expertise: Belgium

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City
Leuven

Forest Ecology and Management Research Group The research group Forest Ecology & Management aims at conserving, restoring and optimizing the ecosystem services of forest landscapes through research on human interactions with the biodiversity, structure and function of tree-dominated ecosystems. The research group pertains to the Department of Earth and Environmental Sciences, Forest, Nature and Landscape (FNL) Division of KU Leuven.

Conservation expertise: Forests / restoration / agriculture / ecosystem services / tropical environment

Geographical areas of expertise: Belgium / Europe / Africa / South America



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City
Brussels

Center for Economics and Corporate Sustainability (CEDON) CEDON (Centrum voor Economie en Duurzaam Ondernemen) is an interdisciplinary research group focusing on interactions between economics, business, sustainable development and corporate social responsibility (CSR). Within CEDON, about 20 economists, engineers, psychologists and scientists are collaborating to help companies, regulators and society in developing sustainable development and CSR strategies. CEDON's research lines include policy evaluation using cost benefit analysis or cost effectiveness analysis, the design of policy instruments as well as non-market environmental valuation such as stated choice experiments and the hedonic price method. Previous research dealt with, for example, optimal policies for afforestation, compliance incentives for participants within conservation programs, noise hindrance, waste policies and the willingness to pay for organic food products.

Conservation expertise: Ecosystem services / governance / environmental law / public perception and awareness

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City

Louvain-la-Neuve

Biodiversity Research Centre (BDIV) - Earth and Life Institute, Biodiversity

The ‘Biodiversity Research Centre’ regroups several research teams of scientists at UCL, covering the main aspects of biodiversity science: ecology (from behavioral, metapopulation and landscape ecology to species interactions and community ecology), evolution (from evolutionary ecology to speciation studies), conservation biology, and environmental law.

Basic and applied research programs are conducted, on unicellular organisms, plants and animals, at scales varying from the gene to the landscape, and combining laboratory and field based approaches with statistical analyses and ecological modelling.

Conservation expertise: Urban environment / agriculture / climate change / environmental law / ecosystem services / marine environment

Geographical areas of expertise: Brussels-Capital region / Flanders / Wallonia / Belgium / Europe / Africa / Central America

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City

Louvain-la-Neuve

Seminar in Environmental and Planning Law (SERES)

The research and consulting activities of the Seminar (Séminaire de droit de l’environnement et de l’urbanisme - SERES) focus on all areas of international, European and national environmental law (water, waste, air, noise, soil, biodiversity, landscape, natural resources, etc.), spatial planning (territorial planning, urban policy, operational planning, etc.), as well as in all related areas of sustainable development law and rural law. One of the main research topic deals with biodiversity conservation in its broad sense, including biodiversity and ecosystem services conservation law and policy and their integration into agriculture, forestry, industry, land use planning, tourism and energy policies, etc. in international, EU and national law. The Seminar pertains to the Faculty of Law, Institute for Interdisciplinary Research in Legal Sciences (JUR-I) of UCL.

Conservation expertise: Environmental law

Geographical areas of expertise: Belgium / Europe

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City

Louvain-la-Neuve

Plant Ecology, Genetics, reproduction, populations (POPS) The ‘Plant Ecology, Genetics, reproduction, populations’ (POPS) research group works on the ecology of plant populations, considering reproductive systems and genetic aspects. Floral biology (plant attractiveness), flowering phenology and pollinator guilds and efficiency are analysed; and experimental pollinations to assess the breeding system are performed. Molecular markers are used for estimating the structure, the clonality and the genetic diversity of populations as well as gene flow, paternity and dispersal.

Model species are diverse: from crops to rare or, on the contrary, invasive plants. In the context of conservation biology, several bog and heathland species including Ericaceae were examined. In the context of invasion biology, exotic plant species have been studied: *Prunus serotina*, *Senecio inaequidens*, *Impatiens glandulifera* or *I. parviflora*. A great majority of these models are pollinated by bees. Ecosystem functioning is assessed mainly by the way of pollination services.

Conservation expertise: Urban environment / agriculture / forests / restoration / invasive alien species / ecosystem services

Geographical areas of expertise: Brussels-Capital region / Flanders / Wallonia / Belgium / Europe / Africa

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City

Mons

Laboratory of Zoology

The ‘Laboratory of Zoology’ is specialised in the study of bumble bees and solitary bees with focus on mapping, ecology and systematics of these groups.

Conservation expertise: Collections and taxonomy / agriculture

Geographical areas of expertise: Belgium / Europe



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City

Liège

Conservation Genetics

The 'Unit of Conservation Genetics' investigates the evolutionary history and the conservation genetics of different mammal species, distributed in Europe, Asia, North and South America and Africa. For this, different approaches such as phylogeography, population genetics or molecular systematics are developed. This research aims at better understanding the impact of past, present and future environmental changes, on the genetic distribution and the genetic diversity of species. More particularly, different conservation genetics studies of several threatened species (e.g. European mink, African lion, polar bear, European desman, European otter) are developed.

Conservation expertise: Tropical environment / polar environment / marine environment / invasive alien species / climate change / collections and taxonomy / governance

Geographical areas of expertise: Flanders / Wallonia / Belgium / Europe / Africa / North America / South America / Asia

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City

Liège

Cyanobacteria laboratory

The research of the 'Cyanobacteria laboratory' focuses on the taxonomy and phylogeny of cyanobacteria in polar regions, principally in Antarctica. The microbial diversity is still largely unknown, though it appears that endemism is commonly found in Antarctic microorganisms. As a consequence of their research activities and the current threats to the polar regions, the scientists are involved in the biodiversity conservation in the frame of the Antarctic Treaty and its Protocol on Environmental Protection. In addition, as an 'ex-situ' conservation activity, the laboratory hosts the public BCCM/ULC collection (<http://bccm.belspo.be/about/ulc.php>) that includes many Antarctic cyanobacterial strains. Other scientific activities relevant for conservation are the studies of cyanobacterial blooms in surface waters in Europe and Belgium.

Conservation expertise: Polar environment / climate change / collections and taxonomy / governance / public perception and awareness

Geographical area of expertise: Belgium / Europe / Antarctic



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City

Gembloux

Biodiversity and Landscape Unit

The 'Unit for Biodiversity and Landscape' conducts research on biodiversity management including species conservation and restoration ecology regarding quarries, grasslands, and tropical forest.

Conservation expertise: Invasive alien species / agriculture / forests / tropical environment / restoration / climate change

Geographical area of expertise: Belgium / Africa

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City

Arlon

Socio-Economy, Environment, Development (SEED)

Research activities of SEED focus on governance and especially on the integration of conservation in the socio-economic sectorial activities. Research projects are largely interdisciplinary and aim at reconciling conservation objectives with social and economic practices through organisational and technical changes. That implies reflexivity on research practices and strategies. Research concerns national parks (Ivory Coast), marine protected areas (Senegal) and forest conservation (Argania forest) in Morocco. In Europe it mainly concerns mutual adaptation of agriculture and conservation namely through agroecological approaches and local governance of biodiversity.

Conservation expertise: Agriculture / forests / governance / public perception and awareness

Geographical area of expertise: Wallonia / Belgium / Africa / South America



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Namur

Unité de Recherche en Biologie Environnementale et Evolutive (URBE)

Understanding the factors and processes, which determine structure and composition of communities has always been a main scope in hydrobiology. Progress of knowledge in this field applies to management of water bodies and to ecosystem restoration. URBE has an expertise on several key freshwater communities, from phytoplankton to fish, used for ecological status assessment, impact studies and stream restoration.

URBE also conducts studies on ecosystem function, in particular on biogeochemical cycles involving planktonic microorganisms of inland waters, and on the interactions within the food webs. This research is conducted in temperate and tropical lakes, and attempts to link biodiversity and ecosystem processes, possibly impacted by environmental changes related to global warming, exotic species introduction, eutrophication and resource exploitation.

Conservation expertise: Freshwater

Geographical areas of expertise: Wallonia / Europe / Africa

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City

Namur

Laboratory of Evolutionary Genetics and Ecology (LEGE)

The Laboratory of Evolutionary Genetics and Ecology is combining aspects of ecology, population genetics, phylogeography, cytogenetics and genomics to study the evolutionary dynamics of asexual organisms and invasive species. Among the aquatic invasive species, molluscs of the genus *Corbicula* and *Dreissena* are successful groups and are of particular concern. They are benthic filter-feeders with an impact on phytoplankton decline but also competing with native bivalves, reducing the local biodiversity. Moreover, these invasive molluscs are the cause of many biofouling problems. Besides studying their ecological impact, the taxonomic status of these invasive species is investigated. Another invasive species threatening freshwater biodiversity are semi-aquatic mammals such as the Canadian beaver and the American mink that are colonising many regions in Western Europe and threatening the native Eurasian beaver and European mink respectively. The genetic characteristics of both species are studied to determine the impact of their genetic diversity on their invasiveness and their impact on native species.

Conservation expertise: Invasive alien species / freshwater / collections and taxonomy

Geographical areas of expertise: Belgium / Europe



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Brussels

Centre for Economic and Social Studies on the Environment (CEESE-ULB)

The 'Centre for Economic and Social Studies on the Environment' (CEESE-ULB) carries out studies on environmental issues related to ecosystem services, climate change impacts and adaptation. Within this context, management tools have been developed to provide the ecological-economic foresight and modelling required to give a better quantitative understanding of the interactions between the economic system and the ecosystem. The studies meet two main objectives: on one hand they assist decision-makers in working out environmental policies in a present or future economic and social context, and on the other hand they contribute to fundamental research into the relations between the economic and environmental spheres.

Conservation expertise: Ecosystem services / climate change

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City

Brussels

Evolutionary Biology & Ecology

The 'Evolutionary Biology & Ecology' of ULB focuses on different research areas:

Biodiversity and Conservation: Problems of biodiversity conservation are studied in the local area and in tropical forest ecosystems, with focus on distribution and behaviour of endangered or invasive species. Focus groups are termites, ants and ladybirds but also trees, on which biodiversity and its variations are evaluated, depending on natural environment conditions and human activities impact.

Phylogeography: The impact of Pleistocene climate history on the geographic distribution of genetic variation, and more generally on the mechanisms of speciation is studied. Phylogeographic studies are conducted in Europe, Asia, and North America on several leaf beetles species, and in central Africa on rain forest tree species.

Systematics and Phylogeny: Identification and description of genus and species are made in part for their own interest (inventory of living organisms), but also as a basis for studies on biodiversity estimation.

Conservation expertise: Urban environment / forests / tropical environment / restoration / new and analogue ecosystems / invasive alien species / climate change / ecosystem services / collections and taxonomy

Geographical areas of expertise: Brussels-Capital region / Flanders / Wallonia / Belgium / Europe / Africa / North America / Central America / South America / Asia / Oceania

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City

Brussels

Landscape Ecology and Plant Production Systems

The research activities of the ‘Landscape Ecology and Plant Production Systems’ research group focus on the ecology, evolution and conservation of wild bees in semi-natural habitats and agro-ecosystems, both in Belgium and in Central Africa.

One of the main research topic deals with agroecological research, with a particular focus on biodiversity conservation in its broad sense, including biodiversity and ecosystem services in agroecosystems.

Conservation expertise: Agriculture / tropics / ecosystem services / collections and taxonomy

Geographical area of expertise: Wallonia / Belgium / Africa

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Brussels

Systems Ecology and Resource Management

The ‘Laboratory of Systems Ecology and Resource Management’ seeks to understand and to predict how and why spatio-temporal dynamics in vegetation and landscape occur. It adopts a retrospective approach using relevant methods from different disciplines (e.g. tropical botany, very high resolution sequential remote sensing and ground truth, socio-economic survey research & historic archive research), an integrative analysis (using e.g. geographical information systems, multivariate and multicriteria analyses) in order to generate outputs relevant for the fundamental understanding of ecosystem functioning (health status, resilience) and for its management (conservation, restoration). Within this framework, the emphasis is on biodiversity changes, climate change, ecological and ethological plant-animal interactions and man-ecosystem interactions. The research is done on different spatial scales from the case-study level in different countries to the macroecological level (global).

Conservation expertise: Forests / tropics / marine environment / restoration / invasive alien species / climate change / ecosystem services / governance / environmental law / public perception and awareness

Geographical areas of expertise: Africa / Central America / South America / Asia

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City

Brussels

BIOMAR Marine Biology Laboratory

The research themes of the ULB Marine Biology Lab are very diverse. They include work on symbioses, form and function, global change, ecophysiology, marine biodiversity, biodiversity informatics and microbiology. The various teams develop their own research by benefiting from diverse competences available at the Laboratory and sharing of research infrastructure (image analysis, trace metals analysis, biochemistry, enzymology, chromatography, cell culture, larval rearing, microscopy, sampling, transport and maintenance of marine organisms, remotely operated vehicle system).

Conservation expertise: Polar environment / marine environment / climate change / collections and taxonomy

Geographical area of expertise: Europe / Africa / Antarctic

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Brussels

Herbarium and Library of African Botany (BRLU)

The herbarium of ULB “BRLU” has become one of the most significant plant collections for Central Africa (more than 200.000 dried specimens). It is a unique tool for teaching, research and plant conservation. Conservation activities of BRLU include three main goals: 1) conserving forest diversity and the associated traditional knowledge, 2) supporting sustainable exploitation of these resources, and 3) training Central African and European students in the methods needed to conserve, study, and sustainably use these resources. Main activities include: Ex situ conservation of orchids and endemic plants of Central Africa; Conservation of Katanga endemic plants; Baseline study and offsets identification for Environmental Impact Assessment (EIA); Management planning of logging concessions and delineation of new protected areas; IUCN Red Listing of Central Africa plants and orchids; CITES center.

Conservation expertise: Forests / tropical environment / invasive alien species / ecosystem services / collections and taxonomy / governance / environmental law

Geographical area of expertise: Africa

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Brussels

Plant Ecology and Biogeochemistry (Evb)

The Laboratory of Plant Ecology and Biogeochemistry investigates plant ecology with special focus on plant communities in metal rich soil (metallophytes) and the impact of invasive alien species. The lab has expertise in genetic diversity, phylogeography, evolutionary ecology and taxonomy of plant populations adapted to heavy metal rich soil. Target species and ecosystems include both temperate ecosystems (especially Zn-, Cd-polluted soil and *Noccaea caerulea*) and tropical ecosystems (flora of copper contaminated soil in Katanga). The lab has been instrumental in the set up of the first successful experiment of phytostabilisation of metal-polluted soil in Central Africa.

Conservation expertise: Invasive alien species / forests / restoration/ tropical environment/ new and analogue ecosystems

Geographical areas of expertise: Belgium / Europe / Africa

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Hasselt

Centre for Environmental Sciences (CMK-UHasselt)

The ‘Centre for Environmental Sciences’ (CMK-UHasselt) is an interdisciplinary research institute, in which seven research teams focus on environmentally related fundamental and applied research questions. Their combined expertise is now concentrated in three main research fields, where biologists, chemists, economists and lawyers focus on environmentally, climate and biodiversity related issues. CMK-UHasselt is collaborating with the Regionaal Landschap Kempen en Maasland and the Agentschap voor Natuur en Bos to establish a Field Research Centre at the main entrance, Connecterra, of the National Park Hoge Kempen. Partly through its new research infrastructure, the Field Research Station will enable and support (international) researchers interested in biodiversity, climate and conservation related research topics.

Conservation expertise: Invasive alien species / climate change / ecosystem services / environmental law

Geographical area of expertise: Flanders / Belgium

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City

Antwerp

Institute for Environment & Sustainable Development (IMDO)

The ‘Institute for Environment & Sustainable Development’ (IMDO) is the inter-disciplinary research platform for fundamental and applied research on environment and sustainable development of the University of Antwerp. The performed research aims at providing scientifically sound and socially robust solutions to environmental and sustainable development challenges, which are often characterised by a high degree of complexity, multiple uncertainties and conflicting normative perspectives. The interdisciplinary research approach fostered by the IMDO platform recognises the added-value of complementary and alternative problem framings. IMDO functions as a service provider and research facilitator to its members, and focuses among other topics, on integrated approaches to conservation challenges. Within the UA, the Plant & Vegetation Ecology (PLECO), Evolutionary Ecology (EVECO) & Ecosystem Management Research Groups focus on conservation.

Conservation expertise: Polar environment / freshwater / ecosystem services

Geographical area of expertise: Belgium / Europe

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Antwerp

Evolutionary Ecology group

The research of the ‘Evolutionary Ecology group’ focuses on fundamental and applied questions in population biology and evolutionary ecology of animals. In the field of conservation biology, empirical work and ecological modelling are combined to investigate the effects of habitat fragmentation on animal populations (with particular emphasis on functional connectivity and spatial population structure), to assess the impact of management scenarios on viability of threatened populations, and to predict the spread and impact of invasive species. Depending on the research question, different model systems are used in temperate as well as tropical ecosystems, mainly involving – but not limited to – birds and mammals.

Conservation expertise: Forests / tropical environment / invasive alien species / collections and taxonomy / restoration / species conservation / population viability / landscape connectivity

Geographical area of expertise: Brussels-Capital region / Flanders / Belgium / Africa / South America

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Wilrijk

Plant and Vegetation Ecology (PLECO)

The research group ‘Plant and Vegetation Ecology’ (PLECO) studies the impact of climate change on terrestrial invasive exotic plant species and their interactions with native vegetation. The focus is on species in temperate and northern biomes in Europe and the group uses both experimental methods (chambers, free-air exposure techniques) and field observations (altitude as a proxy for climate) to explore future conditions. The goal is to help assessing the potential future of biological invasions in terms of environmental risk. A related field of interest is the effect of extreme climate events, such as long droughts and heat waves, on plant communities and ecosystems. Here emphasis is put on characterising how a more extreme future climate will shape plant communities and alter ecosystems, with a view to - among others - mitigating impact through management.

Conservation expertise: Polar environment / invasive alien species / climate change**Geographical area of expertise:** Brussels-Capital region / Flanders / Wallonia / Belgium / Europe**Contact**

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City

Brussels

Plant Biology and Nature Management

The ‘Plant and Nature Management’ team of Conservation Ecology at VUB highlights research subjects in conservation genetics, dispersal ecology, biological invasions and ecological water quality assessment. Within this context, the team mainly operates on aquatic plants that are structural key-stone elements in shallow aquatic ecosystems. The focus of this research team is on the conservation of globally declining vegetation types through the study of species and hybrids (DNA barcoding), diversity hotspots, connectivity and potential for gene flow and dispersal over long distances. On the other hand, the effects of biological invasions on native biodiversity and interactions of various organisms (plants, invertebrates, pollinators) are studied. Conservation Ecology therefore ultimately aims at quantifying effects of disturbances for establishing appropriate measures of conservation: developing sound science based policies.

Conservation expertise: Invasive alien species / freshwater / urban environment / forests / tropical environment**Geographical area of expertise:** Belgium / Europe / Africa**Contact**

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City

Merelbeke

Amphibian and Reptile Disease group

The research group studying amphibian and reptile diseases focuses on bacterial and mycotic diseases that affect reptile and amphibian biodiversity. Most of the work is currently centred around the role of chytridiomycosis and other emerging infectious diseases in global amphibian population declines, with emphasis on host-pathogen interactions and the development of mitigation measures, both in captivity and in the field. The research group strongly believes in an interdisciplinary approach, combining the veterinary expertise with that of colleagues in biological sciences.

Conservation expertise: Forests / freshwater / invasive alien species**Geographical area of expertise:** Flanders / Wallonia / Belgium / Europe / Asia**Contact**

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City

Gent

Terrestrial Ecology Unit (TEREC)

Scientists and students of the ‘Terrestrial Ecology Unit’ study patterns and processes underlying the functioning of terrestrial ecosystems. This is achieved through competitive research programs dealing with population and vegetation dynamics, biotic interactions between plants, herbivores, pollinators and predators, behavioural and life-history trait variation, phenotypic (developmental) plasticity and bio-indicators in invertebrate and vertebrate species. Patterns and processes are studied at ecosystem, population, and individual levels, and interpreted within a fundamental (evolutionary-ecological) and applied (conservation-oriented) framework. The latter comprises the study of fluctuating asymmetry as early-warning system in animal conservation and the study of nature management impact on populations and communities of plant.

Conservation expertise: Urban environment / forests / tropical environment / restoration / invasive alien species / climate change / ecosystem services / governance / environmental law**Geographical area of expertise:** Flanders / Belgium / Europe / Africa

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City

Merelbeke

Wildlife Population Health Research Group

The global loss of biodiversity requires a multidisciplinary approach to understand underpinning mechanisms and develop mitigation measures. Based at the faculty of veterinary medicine, the 'Wildlife Population Health Research Group' studies the impact of infectious diseases on wildlife, in close collaboration with colleagues from the biological sciences. The current work mainly focuses on 1) anthropogenic factors affecting the interactions of infectious diseases with wild birds and amphibians and 2) emerging infectious diseases in birds, amphibians and reptiles. Infections studied include diseases such as salmonellosis, aspergillosis, ranavirosis and chytridiomycosis. To test hypotheses, lab experiments are combined with field data.

Conservation expertise: Urban environment / agriculture / forests / invasive alien species

Geographical area of expertise: Belgium / Europe

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City

Ghent

Department of Public International Law

Within the Department of Public International Law, one of the main research areas is international and European environmental and biodiversity law. This research includes a broad variety of topics on environmental and biodiversity law. Specific research has been done on marine environmental protection. This includes research on international and Belgian marine nature conservation law, marine protected areas, marine spatial planning, integrated coastal zone management, fisheries. Other research deals with topics such as international and European biodiversity and nature conservation law, ecological restoration, ecosystem services, climate change and protected areas, ecological refugees, gender and biodiversity, and the relationship between human rights and nature conservation.

Conservation expertise: Marine environment / restoration / environmental law

Geographical area of expertise: Flanders / Belgium / Europe / Africa / Asia

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City

Gontrode

Forest & Nature Lab (ForNaLab)

'ForNaLab' focuses on hypothesis-driven research on the mutual interactions between (forest) ecosystem structure, composition and diversity and (forest) ecosystem processes, based on actual policy or management questions or aimed at providing advice for management and policy. More specifically, a strong focus is put on functional biodiversity research, on studying the impacts of global change drivers on ecosystem composition and functioning, and on basic and applied research to underpin ecological restoration measures.

Conservation expertise: Forests / restoration / invasive alien species / climate change / ecosystem services

Geographical area of expertise: Flanders / Wallonia / Belgium / Europe

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City

Ghent

Laboratory for Tropical and Subtropical Agronomy and Ethnobotany

The 'Laboratory for Tropical and Subtropical Agronomy and Ethnobotany' deals with the ethnobotany and the characterisation of (useful) plant germplasm, and with the vegetations in which these plants occur. Management plans are defined based on vegetation characterisation. Plants are also analysed for their nutrient contents, whereas ecophysiology/stress physiology should give insight in plant behaviour in extreme situations; agroforestry research concentrates on integrateion of tree/shrub species with crops; useful and under-utilized plants are domesticated where possible.

Conservation expertise: Agriculture / tropical environment / forests

Geographical area of expertise: South America / Central America / Africa / Asia

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City

Ghent

Laboratory of Microbiology

Microorganisms are essential for nutrient cycling in all ecosystems. Minor shifts in their diversity due to changing environmental conditions can have a major impact on the total ecosystem functioning. Thus, from a microbiological perspective, ecosystem conservation is very important, although these small organisms are not always considered in this context. Conservation of microorganisms is mostly applied ex situ and in pure cultures. The ‘Laboratory of Microbiology’ focuses on the next step of ex situ conservation of microorganisms, namely the conservation of fastidious microorganisms relevant to biogeochemical cycling and aims to bridge the gap between ex situ conservation of pure cultures and ex situ preservation of total environmental samples.

Conservation expertise: Polar environment / collections and taxonomy

Geographical area of expertise: Belgium / Antarctic

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City

Ghent

Mycology Research Group

The ‘Mycology Research Group’ at Ghent University specifically studies one of the largest groups of ectomycorrhizal fungi, the genus *Lactarius*. Insights and concepts in the Russulaceae have changed profoundly during the last decennium.

Geographical area of expertise: Belgium / Africa

Conservation expertise: Tropical environment

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PLAN(ET).html

City

Ghent

Research Group Spermatophytes

The Ghent University Botanical Garden and the ‘Research Group Spermatophytes’ together with Botanic Gardens Conservation International launched a project comparing genetic diversity between wild populations and ex situ collections of *Hydrangea*, *Magnolia* and Cactaceae called PLAN(ET) “Plants for the future – A future for our planet”. The genetic diversity between wild populations and ex situ collections of the flagship groups *Hydrangea*, *Magnolia* and Cactaceae are compared. A range of genomic tools are being applied to wild and ex situ individuals of selected species to enable rapid characterisation of genetic variation, providing 1) support of specific conservation actions, 2) general guidelines and a protocol on genetic management for acquiring accessions for ex situ collections, to be used by collectors and botanical gardens worldwide in the framework of achievement of Target 8 of the Global Strategy for Plant Conservation (at least 75 % of threatened plant species in ex situ collections, and at least 20 % in recovery and restoration programmes).

Conservation expertise: Tropical environment / invasive alien species / collections and taxonomy / governance

Geographical area of expertise: North America / Central America / South America / Asia

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City

Ghent

Phycology Research Group - Department of Biology

The ‘Phycology Research Group’ conducts marine macroalgae (seaweed) diversity studies and conservation genetics of *Cystoseira* in the Mediterranean Sea.

Conservation expertise: Marine environment / collections and taxonomy

Geographical area of expertise: Europe



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City

Ghent

Protistology and Aquatic Ecology (PAE) The Protistology and Aquatic Ecology group (Department of Biology) focuses on the biodiversity of marine and freshwater microbes and has in particular a long-standing expertise in unicellular eukaryotes. The group comprises about 30 collaborators and addresses several major aspects of biodiversity and environmental research comprising different organisational levels, ranging from studies at the gene level to ecosystem studies. Societal relevance of research outcomes includes 'ex-situ' conservation and development of biological resources via de BCCM/DCG collection (<http://bccm.belspo.be/about/dcg.php>), aquatic ecosystem management, nature conservation and blue biotechnology.

Conservation expertise: Polar environment / tropical environment / urban environment / marine environment / freshwater / restoration / climate change / ecosystem services / collections and taxonomy / governance

Geographical area of expertise: Belgium / Europe / Africa / South America / Oceania / Antarctic

Notes

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