

# CoForChange

Predicting the effects of global change on forest biodiversity in the Congo Basin

www.coforchange.eu

## WHY ?

Forests of the Congo Basin form the second most important remaining block of tropical moist forests (TMFs) in the world. They shelter a high diversity of forest types, and an exceptional diversity of flora and fauna. They provide locally and globally important ecosystem services (carbon storage, regional climate regulation, water recycling), and livelihood to populations in poor countries.

They are facing increasing anthropogenic pressure: mining, timber logging, fuelwood exploitation, land conversion, and climate change: an ongoing drying trend has been observed over the last 30 years and is projected to continue in the future.

These changes will differentially influence species distributions or lead to extinctions, and thus modify TMFs characteristics - composition, diversity and structure -, in turn affecting their functions and services.

Paleoecological data support that such changes have occurred in the past: climatic and anthropogenic disturbances have significantly influenced TMFs characteristics in the region over the last 6000 years. Improving the understanding of these past changes is crucial for projecting forest changes in the future and developing adequate conservation and management strategies. This is the challenge of the CoForChange project.

## WHERE ?

To implement the project, CoForChange has chosen the forests of the "Sangha River interval" region (map). The area comprises 213,000 km<sup>2</sup>, of which about 100,000 km<sup>2</sup> of forests have been inventoried for management purposes. It includes parts of Cameroon, Central African Republic and Republic of the Congo.

Tree communities in the area are representative of Congo Basin TMFs. Given their history, they may be the least resilient to global change, and decision-making tools are thus urgently needed to improve their conservation and management.

The work will rely on inventory data made available by forest national administrations and forest companies.

CoForChange is a four year European-funded project, launched in 2009, whose objectives are to predict changes in forest and tree species distribution due to global change and to elaborate decision-making tools.

Scientific activities will be carried out in the forests of the Sangha River interval. They will be organized into seven workpackages, associating various disciplines and competencies.

## HOW ?

Activities are organised into seven workpackages (WP1-WP7), of which six are scientific.

WP1: coordinate, communicate, and disseminate

WP2: map and characterize tree communities and environmental factors

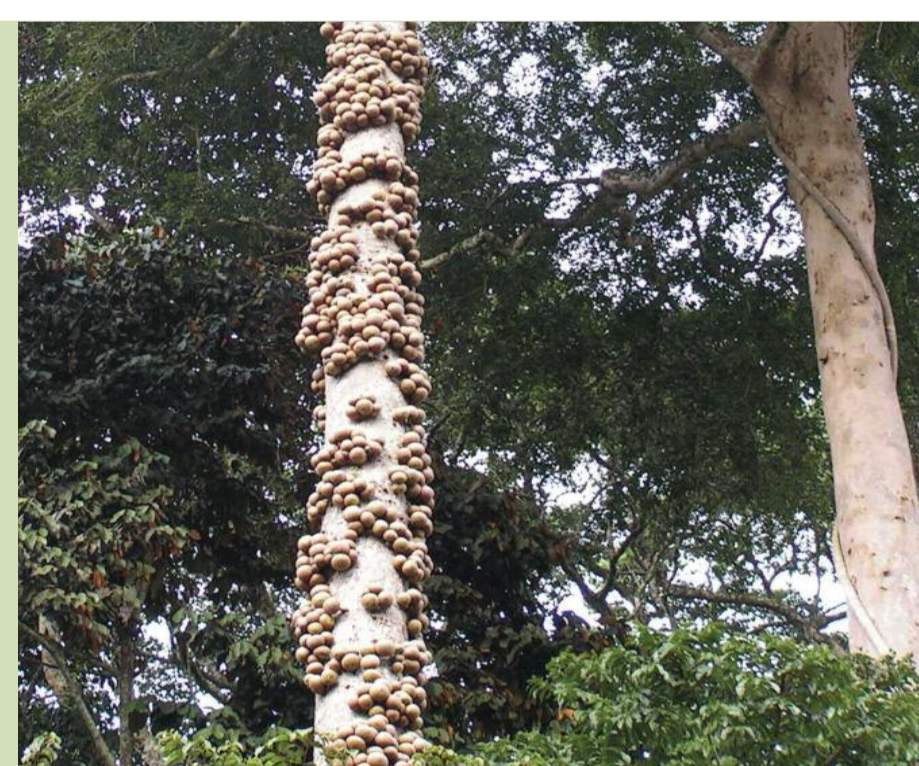
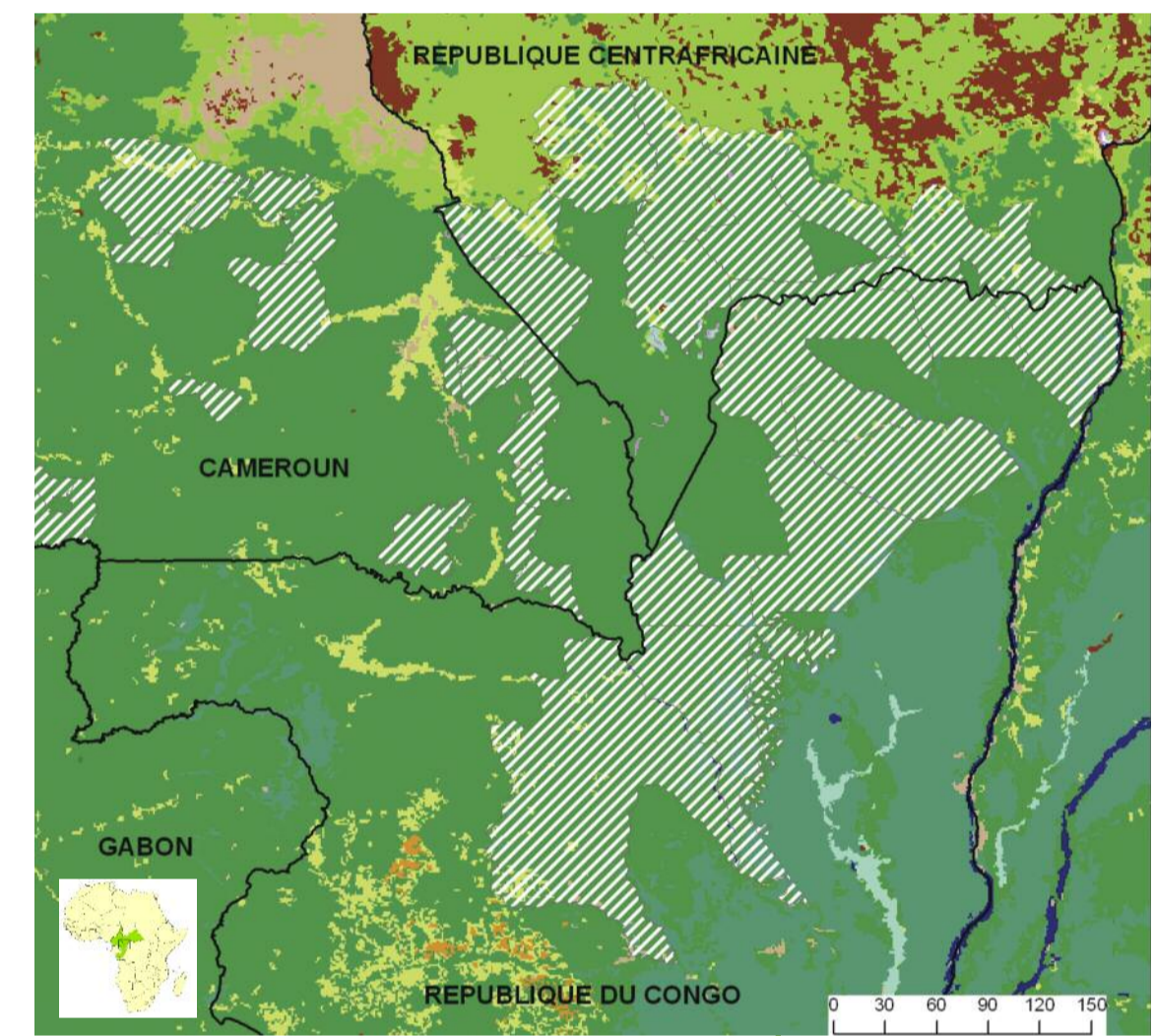
WP3: map soil water availability and its sensitivity to rainfall patterns

WP4: analyse past changes in vegetation, disturbance and environmental variables from present to 4000 BP (before present, i.e. up to 1950)

WP5: characterise drought tolerance, light requirements and associated functional traits of tree species

WP6: evaluate the ongoing development of tree communities

WP7: integrate, predict, and provide decision-making tools



## WHAT FOR ?

In order to know how, why and where tree species may survive a drying trend and an increase in resource use, the project will:

- Identify the main drivers of TMFs characteristics (structure, composition, diversity), be it climate, which impacts on water and light availability, or anthropogenic disturbance, which impacts on light availability.
- Evaluate the ongoing evolution of tree communities and predict changes in TMFs characteristics according to various scenarios of global change (climatic, anthropogenic)
- Produce decision-making tools for conservation and sustainable management strategies.

## FOR WHOM ?

By linking information on spatial and temporal variation of tree communities composition, spatial and temporal variation of environmental factors, and species functional traits, CoForChange will produce operational decision-making tools for African and European administrations, private logging companies, certification institutions and NGOs. Knowledge and results will also be disseminated to decision-makers through policy briefs, and to researchers and students through scientific publications and inclusion into training programs.

### SCIENTIFIC PARTNERS

CIRAD : French Agricultural Research Centre for International Development, France

CNRS : National Centre for Scientific Research, France

FRAM : Forest Resources Management, France

FUSAGx : Cambiose Agricultural University, Belgium

IRD : Research Institute for Overseas Development, France

JRC : Joint Common Research Centre, Italy

University of Oxford, United Kingdom

University of Aberdeen, United Kingdom

IRET : Research Institute in Tropical Ecology, Gabon

MINRST : Ministry of Scientific Research and Technical Innovation, Republic of the Congo

CRDPI : Research Center on Sustainability and Productivity of Industrial Plantations, Republic of the Congo

University of Bangui, Central African Republic

University of Yaoundé I, Cameroon

University Marien Ngouabi, Republic of the Congo

CIFOR : Centre for International Forestry Research, Indonesia



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