

The Research Group
Ecology and Biodiversity

has the honor to invite you to the public defense of the PhD thesis of
Magdalene Namondo NGEVE
to obtain the degree of Doctor of Sciences

Title of the PhD thesis:

*Genetic connectivity of mangroves along the
Cameroonian coastline*

Promotors:

Prof. Ludwig Triest

Prof. Nico Koedam

The defence will take place on

Tuesday June 27th 2017 at 17:00 h

in Auditorium D.0.02 at the campus
Humanities, Sciences and Engineering of the
Vrije Universiteit Brussel, Pleinlaan 2 - 1050
Elsene, and will be followed by a reception.

Members of the jury:

Prof. Farid Dahdouh-Guebas (chairman)

Prof. Marc Kochzius (secretary)

Prof. Dominique Maes

Prof. Olivier De Clerck (Univ. Gent)

Dr. Nele Schmitz

(Johann Heinrich von Thünen Inst.)

Curriculum vitae

Magdalene N. Ngeve (born in Buea, Cameroon, 1988) obtained a Master of Science degree in Biology, following a scholarship she received from the VUB-IRMO, in 2013. In the same year, she was awarded a PhD scholarship by the same sponsor and went on to pursue her doctoral studies, under the supervision of Prof. Dr. Ludwig Triest and Prof. Dr. Nico Koedam, in the Ecology and Biodiversity Lab of the VUB.

She has participated in several international conferences and authored 3 peer-reviewed papers, in which she has shared her scientific work.

Abstract of the PhD research

Genetic connectivity plays a crucial role in maintaining the genetic variability, evolutionary potential, and the global biogeography of mangrove species. Mangroves plants are foundation species to unique tropical intertidal ecosystems, which are currently highly degraded. Therefore, fully understanding their patterns and drivers of genetic connectivity are crucial. The **main objective** of this project was to disentangle the different drivers and patterns of genetic connectivity at different geographical scales, i.e., at regional, local, and fine-scale levels, in the most abundant mangrove (*Rhizophora racemosa*) populations of the Cameroonian coastline.

Propagule dispersal modelling data, in congruence with genetic data, indicate that (historical) sea level rise and contemporary ocean current patterns have contrasting effects on regional-scale genetic connectivity. Local hydrodynamics and forest structure maintain local-scale genetic connectivity within the Cameroon Estuary Complex (CEC). Fine-scale genetic structure (FSGS) and signs of recent bottleneck events were observed in the CEC. Pollen dispersal potential was also low in the CEC, where a mixed mating system, i.e., outcrossing and a small level of selfing occur in these populations.

These findings support the need to investigate gene flow at multiple-geographical scales to identify the different drivers mediating connectivity at the different scales, and for holistic understanding of the drivers of species distribution.