Biodiversity, Climate, and Carbon: The Forests of the Congo Basin

VINCENT MEDJIBE

Forests of the Congo Basin forests are precious as storehouses of biodiversity and carbon, for their moderating influences on regional climates, and for their contributions of raw materials to local people and extractive industries. Given their value and the unnecessary damage that they often suffer at the hands of unscrupulous and untrained loggers, it is crucial to investigate the extent to which improvements in forest management practices can serve to reduce carbon emissions, maintain biodiversity, and increase future timber yields in the region. To contribute to this objective, I conducted field research on the impacts of logging on forest biomass carbon in Gabon as part of my doctoral program in the Department of Biology and the School of Natural Resources and Environment (2007 - 2012).

Gabon is the most forested country in central Africa and about 35% of its land area is allocated as logging concessions for the production of timber. To capture some of the variability in the ways the forests are treated, I assessed the impacts of logging in a forest logged with reduced-impact logging methods managed by Tropical Forest Foundation, a Forest Stewardship Council-certified forest concession, and a conventionally logged forest concession. The results are all published or in press, and reprints are available upon request. Throughout this project, I supervised several students from the Ecole Nationale des Eaux et Forêts as part of an effort to build human capacity in conservation and management in the region.

The results of my doctoral study fed directly into the deliberations of the Gabonese Climate Council regarding carbon emissions from logged forests and were included in the country's Climate Plan presented at the UNFCCC in Durban, South Africa. After completion of my PhD, I commenced working for the Gabon Forest Carbon Assessment (GFCA) project based in Libreville. As the scientist responsible for this project, I supervise the establishment of 100 one-ha plots country-wide, which includes training of field assistants in forest sampling methods. The project also involves high-density LiDAR data and digital imagery coverage for the entire country. The President has asked us to finish this project by the end of the year so that its results can be included in the country's updated Climate Plan and in the creation of the country's first systematic land-use plan. Although the National Climate Council oversees all climate-related work, my scientific team within the National Parks Agency (ANPN) carries the technical responsibility.

Our forest carbon assessment work is a critical element in the country's low emissions development strategy, and the results of the program will help Gabon meet its international commitments. Within Central Africa, this is the first such assessment with country-wide LiDAR and field data. The National Climate Council expects us to publish the results from the assessment in scientific journals, but they will also be presented at the UNFCCC conference so that other countries, agencies, and research groups can learn from the Gabon experience. Our project also contributes to capacity-building in the region by making its field methodologies available to other central African countries that are endeavoring to develop their own forest carbon monitoring systems.

Vincent Medjibe earned his PhD in interdisciplinary ecology from the School of Natural Resources and Environment in May, 2012.