Previously published on the BirdLife International website on 26 July 2016
Note: Some hyperlinks may no longer be active

Sediment fingerprinting: monitoring erosion in the Lake Kivu-Rusizi River landscape

- *By Albert Schenk*

View of Lake Kivu from Rusizi River © Josep Casas

Erosion resulting from human activities such as agriculture is a widespread and major cause of land degradation. Eroded sediments are deposited downstream, causing additional problems such as reducing the flow of streams and rivers, silting up of wetlands, blocking hydropower installations and negatively affecting primary production and fish spawning grounds in the littoral zones of lakes. Climate change, resulting in more frequent extreme weather events such as prolonged droughts and heavy rains, further exacerbates the situation.

Addressing erosion and sedimentation is therefore central to the CRAG approach currently being piloted in the Lake Kivu–Rusizi River Basins in Burundi, DR Congo and Rwanda. The acronym CRAG stands for Climate Resilient Altitudinal Gradient, which is a landscape unit with a minimum altitudinal range of 1,000 meters, characterized by climate resilient biodiversity and ecosystem service values.

To prioritize what needs to be done and where in order to reduce erosion, and to monitor the impact of interventions, a novel technique called sediment fingerprinting will be applied within the landscape.

Previously published on the BirdLife International website on 26 July 2016
Note: Some hyperlinks may no longer be active

Poor landscape use © Albert Schenk

The approach has two key elements: firstly, collection and analysis of soil samples from potential sediment source areas (e.g. channel banks and agricultural fields) to identify distinctive signatures from each source area based on approximately 20 different elements; and secondly, sediment collection in streams showing a mixture of sediments from different source areas. Sediment fingerprinting involves separating stream sediment out into the different source area sediments, thus allowing analysts to quantify which area contributes to the sediment load and to what extent. As such it will inform planners which areas are the erosion hotspots within the landscape and where, therefore, erosion reducing interventions, e.g. terracing, reforestation and agro-forestry, are most urgently needed or, in the case of often limited available resources, need to be prioritised. Moreover, sediment fingerprinting, when repeated over time, will inform practitioners whether their interventions have the anticipated positive impacts on reducing the sediment load throughout the catchment area.

The training in sediment fingerprinting has been conducted in June 2016 by BirdLife International, BirdLife Partners Association Burundaise pour la protection de la Nature (ABN) in Burundi and Association pour la Conservation de la Nature au Rwanda (ACNR) in Rwanda, and Horizon Nature, an NGO working in Eastern DR Congo. The project is funded by the MacArthur Foundation and the Critical Ecosystem Partnership Fund.

For more news about CRAGs, please visit our CRAG news page here.