Anthropogenic Effects on African Landscapes:
Spatial structure, Typologies, Ecological impact

Isabelle VRANKEN1, 2, Jan BOGAERT2, Marjolein VISSER1
1: Research unit of Landscape Ecology and Plant Production Systems, Ecole Interfacultaire de bioingénieurs, ULB, Belgium
2: Biodiversity and Landscape unit, Gembloux Agro-Bio Tech, ULg, Belgium

Context of the study:
Anthropogenic effects cause environmental pressures leading to degraded states of ecosystems. They are here studied from a landscape ecology perspective: by studying the spatial structure (composition + configuration) of habitat patches in landscapes, to infer the impacts on ecological processes (pattern / process paradigm). The present study focuses on the pressures, states and impacts aspects of the DPSIR framework. 20 landscapes from D.R.C., Ivory Coast and Benin were studied using satellite imagery.

Results:
Compositional heterogeneity ($H$, Simpson index) of landscape patterns depending on anthropogenic effects intensity ($A$). Heterogeneity is maximal at intermediate anthropogenic effect intensity. The same results have been observed for configurational heterogeneity.

Conclusions:
Two hypotheses linking anthropogenic effects, heterogeneity and biodiversity already exist. The present results form the third hypothesis that completes the triangular relationship between those 3 parameters. This has important outcomes in sustainable development and biological conservation.

Implications for land management:
Areas with maximal landscape heterogeneity and intermediate proportions of anthropogenic land covers have higher biodiversity.

Contact: ivranken@ulg.ac.be