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Drivers of Degradation: Linking Large-scale Degradation to Human Influence in the Nigerian Guinea Savannah

Ademola. A Adenle and Chinwe Ifejika Speranza

University of Bern, Hallerstrasse 12, CH-3012 Bern, Switzerland, Institute of Geography , Switzerland
(ade.adenle@gmail.com)

The Nigerian Guinea Savannah is the largest agro-ecological belt, encompassing about 49% of Nigeria, and is one of the most diverse, fragile and threatened ecosystems in the country. Land degradation in the zone is a serious challenge driven by deforestation, agriculture and other livelihood needs. Yet the link between land degradation and unsustainable human influence is widely acknowledged but spatially under explored. The study thus examined the spatial relation of human influence with land degradation in order to inform better land use management. We updated the Human Influence Index by combining the following spatial layers, namely: (1) distance to a major city; (2) land use/land cover; (3) human population density; (4) distance to major roads; (5) distance to railways; and (6) navigable waterways. We then overlaid the Human Influence Index with MODIS-derived land degradation status in order to explain the level of human influence on land degradation. In total, 38% of the Nigerian Guinea Savannah land area are becoming more degraded, while 14% and 48% of the remaining area show either improvement or no change, respectively. However, spatial proximity of human activities was observed to influence land degradation, but with more degradation occurring in areas of low population density. This shows that the spatial pattern of Human Influence Index data cannot completely explain land degradation in the zone. We thus present a more holistic approach to identifying human influence on land degradation in the Nigerian Guinea Savannah.