Ecological functioning and Ecosystem evolution in mosaic forest-savannah and human presence context for 3000 BP at Lope National Park (Gabon)

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Abstract

Pollen collected in surface samples and cores are studied in Lopé National Park (LPN) in Gabon in order to (i) establish the modern pollen-vegetation relationship; (ii) the forest-savannah dynamic and (iii) the human impact on this dynamic. In this aim, Correspondance Analysis (CA), and linear regressions are used in both vegetation survey data and a set of 23 surface pollen samples. The CA results are concordant with published data, distinguishing closed vegetation habitat from opened ones in pollen assemblages, and two vegetation types (savannah and forest) in plant taxa. This last one shows a difference between vegetation near the marsh and the one beyond. The border between the two areas seems to be around 30-40 m from the marsh margin. Unfortunately, even if all the plant associations are well represented in pollen assemblages, those last ones cannot clearly distinguish each of them in term of groups. We also used Davis indices to better understand this modern pollen-vegetation relationship.The results indicate that Associated taxa are predominantly pioneer taxa such as *Aucoumea, Anthocleista, Barteria*; The Over-represented taxa correspond to taxa often indicators of a perturbation or a shift in the environmental parameters, they are taxa such as *Cnestis, Alchornea*, *Pentachletra, Elaeis guineensis*, etc. The Weakly associated taxa are a mix of over-represented and under represented taxa. They correspond to taxa wich grow together as a population. They are Asteraceae, Cassia-type, Cyperaceae. Long term pollen and multy proxy analysis show a turn over in environnemental settings in LPN.
Keywords: forest-savannah mosaic; marsh; pollen analysis; Davis indices; Central Gabon

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