

Floristic composition and turnover analysis in Dahomey Gap and the surrounding sub-humid Togolese mountain minor forest refuges: importance for biogeography and biodiversity conservation in sub-Saharan Africa

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Abstract

Aims Although minor climatic forest refuges were important as key areas for the long-term persistence of species and genetic diversity, and can again function as refuges during present and future climatic changes, they have received little attention in sub-Saharan Africa. The objectives in this paper were to assess the Togolese montane riparian forests as minor sub-Saharan forest refugia, examine the contribution of minor sub-Saharan forest refugia to the larger forest refugia using the Togolese montane riparian forests as a model, and discuss the implication of these results for biogeography and forest biodiversity conservation in sub-Saharan tropical Africa based on the floristic approach. **Location** Southwest Togo, West Africa, sub-Saharan Upper Guinea Region **Methods** Floristic data were collected across Togolese mountain riparian forests through an intensive botanical inventory using the survey approach (n=198; 50×10 m²). A comparative analysis was performed on the basis of floristic criteria and attributes related to climatic forest refuges. **Results** According to floristic attributes, the riparian forests of the subhumid Togolese mountains were important minor refuges for rainforests during Pleistocene warming. They share about 60% of their current species richness (868 species) with the large sub-Saharan forest refuges. **Main conclusions** The floristic data were similar to that of previous studies focusing on the forest refugia around the DG and elsewhere worldwide. However, they seem to be incompatible with the ideas that the DG forest flora may be essentially a relic of the early Holocene, when the geographical distribution of the Guinean-Congolian forest was maximum. Efforts to maintain maximum species diversity in sub-Saharan Africa should therefore pay particular attention to the conservation of minor forest refugia. This study asks important questions about the patterns of disjunction, which should be focused on in further studies. **Keywords** Tropical biodiversity, Forest refuges, Floristic approach, Dahomey Gap (DG), Togolese Mountain, Vegetation

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